

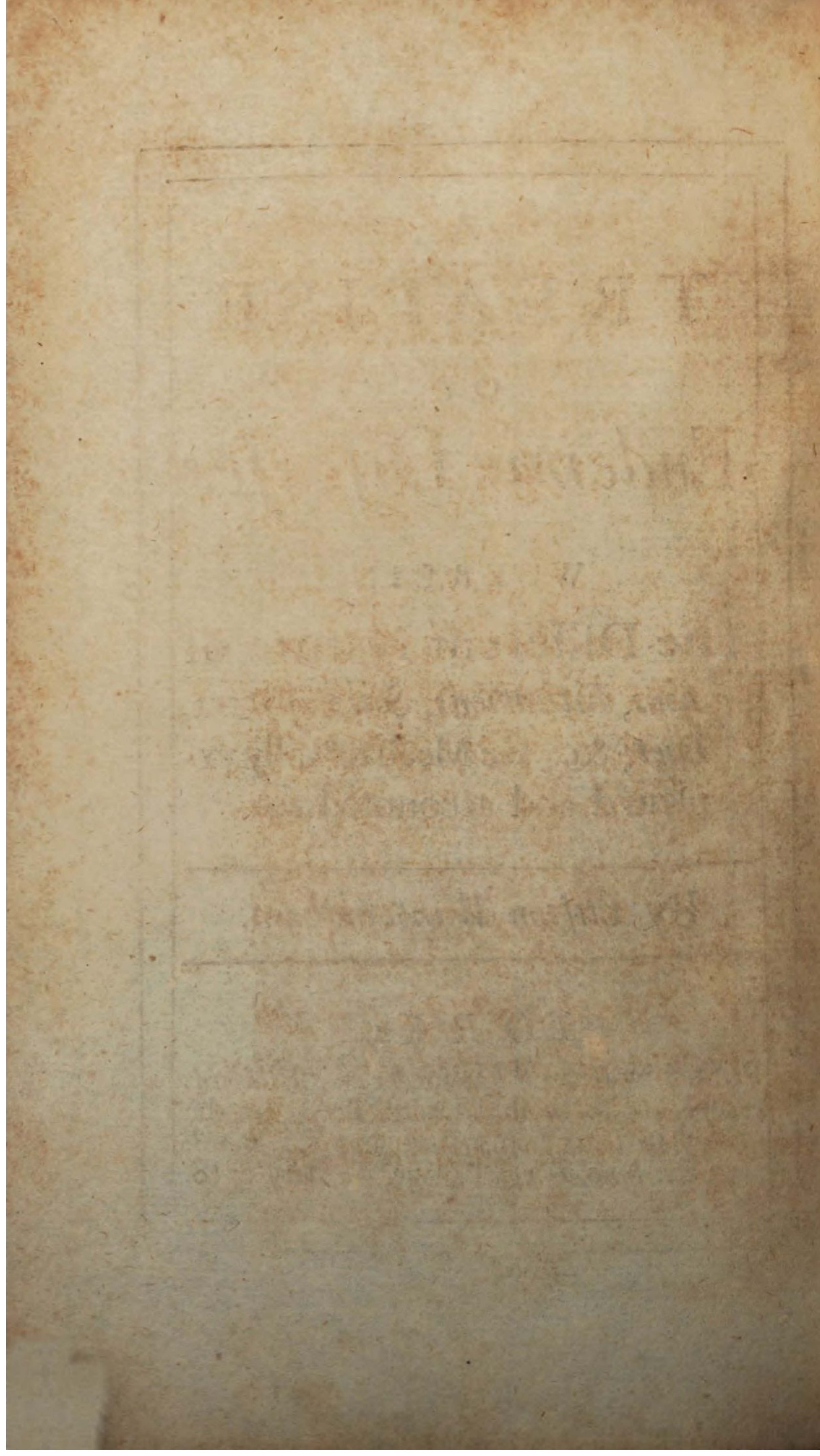
A
TREATISE
OF
Endemic Diseases

WHEREIN
The Different Nature of
Airs, Situations, Soils, Waters,
Diet, &c. are Mechanically ex-
plain'd and accounted for.

By *Clifton Wintringham.*

T O R K :

Printed by *Grace White* for *Francis Hildyard*,
and are to be sold by *W. Taylor*, at the
Ship in *Pater-Noster-Row*, and *Tbo. Ward*,
in the *Inner-Temple Passage*, *London*, 1718.





THE
PREFACE.

THAT the Natural Constitutions, as well as Diseases of Men, inhabiting different Countries and Climates, and even different Parts of the same, are extremely various, has been long since observ'd (a); but the Causes and secret Springs of these Alterations

(a) Hippoc. de Aerib. Aq. & Loc. 1. 5. LVII. 1. Orat. Theſſal. 1. 130.

Galen. de Sanitate Tuend. lib. ii. cap. 7. & lib. v. cap. 14.

in the Animal Oeconomy, by the Knowledge of which, we may be best directed either in preventing, or remedying the Mischiefs consequent on them little regarded. Hence it frequently happens, That in Cases and Circumstances otherwise Parallel, the Success does not equally answer the Expectation of the Physician: For, the First and more remote Causes of Diseases, whether Acute or Chronic, as well as difference of Constitutions, depending in a great measure on the various Disposition of the Air, Situation, Manner of Living, and the like, as will appear by the following Pages, and these being often neglected, because of other seemingly more immediate Causes,
must

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must render the Cure much more Difficult, if not altogether Impracticable; The same Cause which from a sound and healthful State gave Rise to a Distemper, being generally, when continued, able to support it against the most potent Medicine, and otherwise successful Method of Cure.

This is sufficiently evident even in our own Country, from those Agues which so constantly infest the Hundreds of Essex, Fens of Cambridgeshire, and other flat and watery Countries; which in those Airs, through the greater Viscosity induced into the Blood, as well as the Relaxation of the solid Parts by the Humidity of the Air, require stronger Dissolvents,

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and

and a Method of Cure different either in the Quantity, or Quality of the Medicines from those of other Places, whose Situations are different in this Respect; and yet all this in some Cases and Constitutions, so long as they remain in these Humid Airs, is often insufficient, to prevent those frequent Relapses to which they are subject; which yet the Removal into a clear dry Air, tho' unassisted, will often Effectually prevent. Agreeable to this is the Doctrine of Celsus, who assures us that the same Diseases in different Countries and Places, require different Methods of Cure on this very Account, viz. Differre quoque pro Natura Locorum genera Medicinæ, & aliud opus esse
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Romæ, aliud in Ægypto, aliud in Gallia (b). Of the same Mind is Lucretius, who has given us an Elegant Description of the different Natures and Qualities of various Regions, viz.

Nonne vides etiam Cæli novitate & Aquarum Tentari, procul a Patria quicunque domoque Adveniunt? ideo quia longe discrepat Aer. Nam quid *Britannum* Cælum differre putamus, Et quod in *Ægypto* est qua Mundi claudicat Axis, Quidve quod in *Ponto* est differre a *Gadibus* atq; Usque ad nigra virûm, percoctaque sæcla calore?

And again,

Est Elephas Morbus qui propter Flumina Nili Gignitur *Ægypto* in media neque præterea usquam. Atthide tentantur gressus, Oculique in Achæis Finibus, inde aliis alius locus est inimicus Partibus & Membris: varius concinnat id Aer (c).

Nor is this Difference in the Nature of Diseases of Various Places, less Evident from the Practice of Physick in use amongst most Nations in the same Diseases,

(b) Cels. in Præf. ad Lib. i. P. 8.

(c) Titi Lucret. Lib. vi. Verse 1101.

which their frequent Experience recommends as most Useful and Convenient. Whence it is that the English, French, Spaniards, Germans, &c. differ in their Practice, each Recommending that, which they have found most Useful to those of their own Country (d). And indeed without some Regard had, to the different Causes and Rise of Diseases in particular Places and Countries, arising either from the Climate, Air, Soil, Situation, Waters, Diet, or the like; it cannot otherwise happen, but we must be frequently mistaken in our Prognosticks, and fail of that Success we might otherwise reasonably expect.

(d) Baglivi Prax. Med. lib. i. cap. xv. P. 7. Prosp. Alpin. Med. Egypt. Jac. Bont. Med. Indor.

'Twas this Contemplation of the secret and unobserv'd Causes of Diseases, by which the Great Empedocles check'd the Growth of the Plague at Agrigentum, viz. By stopping the Mouths of some neighbouring Mountains, whose pernicious Fumes had infected the adjacent Country (e). Nor was that less Remarkable, which he did at Selinis, where he check'd the raging of the Plague, only by cleansing its stagnating Ditches of their Filth, whose putrid Exhalations had infected the Air, by a fresh Current of Water, drawn from two Rivers in the neighbouring Country (f). To which may be added

(e) Plutarchi Lib. περί πολυπραγμοσύνης.

(f) Diog. Laert. de Vit. Emped. Lib. 8. Segm. 70.

the Cure of the Plague at Athens by Hippocrates, by the help of large Fires in the open Air (g). As also that of Varro, who in a Pestilential Season at Corcyra, saved many by changing the Windows and Doors from a Southern, to a Northern Position (h). Of so great Use is the Knowledge of the Causes of these, and other Endemic Diseases to the entire Extirpation of them; according to that Excellent Sentence of a forecited Author, viz. Inveniuntur in quibus aliter atque in cæteris idem eveniat; & Causæ quoque Æstimatio sæpe Morbum solvit (i).

(g) Auctor Lib. de Theriaca ad Pison. cap. 16.
Aetii Amedei Tetrab. ii. Serm. 1. cap. 94.

(h) Lemn. de Nat. Mirac. Lib. iii. cap. 3.

(i) Cels. in Pref.

But I shall not trouble the Reader, with more Instances of this kind, these being sufficient to shew, how much the Contemplation of the secret Springs and Causes of Diseases, may contribute to the Cure of the most dangerous and fatal ones, even of the Plague it self. How far the following Sheets may contribute to this end I cannot determine: However if they shou'd fail of the desir'd Success, they may possibly excite some more able Hand, to undertake this useful, but neglected Part of Physick, by which its Errors may be corrected, and its Defects supplied.

YORK, Sept. 2d.

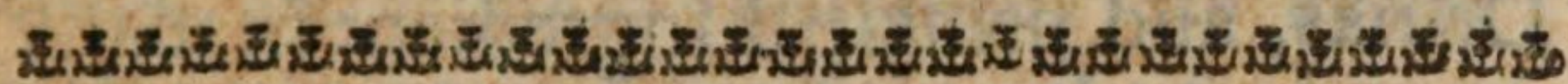
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OF



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Endemic Diseases



C H A P. I.

ENDEMIC DISEASES are generally defin'd by Physicians, to be such as invade any particular Country or Place, in a more peculiar manner than others; and owe their Origine to some particular Qualities of the Climate, Air, Soil, Situation, Waters, and the like.

The Effects springing from these Causes in the Animal Oeconomy, tho' little regarded, are many and surprising, growing
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ing up with us even from our Cradles, and by that means firmly rooted in our Natures, and interwoven in our very Constitutions. Hence spring great and numerous Diseases, and those the most difficult and dangerous. And indeed how can it otherwise happen, when the very Air we breath, the Product of the Earth, our Meats and Drinks, especially the Waters, that great Source of all our Drinks, and principal Ingredient in many other Compounds, are on this Account entirely Different.

Nor are our Bodies only alter'd in Respect of their more sickly or healthful State, but the very Faculties of the Mind are heightned or deprav'd by them; as appears not only from the different Genius and Dispositions of most Nations, but the numerous Observations of the most Eminent Naturalists and Physicians (a).

(a) *Hippoc. de Aerib. & Aq. Galen. de Temperaturis, lib. i. & Lib. de Moribus Anim. P. viii. & ix. Plato in Timæo.*

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I shall begin with the different Situations with Respect to the Air only, and take the Rest in the Order set down: But before I do that, it will be necessary to give some Account of the Air, and its manner of Acting on a Human Body, so far as is necessary to the Understanding of the following Pages.

The Air is a compressible and expandible Fluid, surrounding this Terrestrial Globe to a good Distance, its lower Parts are more compressed than those above, and that, in Proportion to the Density and Height of the Incumbent Fluid.

This Compression is the Occasion of the greater Density of its lower Parts, which is always proportional to its Compression; as is also its Elasticity, The *Vis Centrifuga* of its Particles, being reciprocally proportional to the Distances of their Centers (*b*).

I shall not trouble the Reader, either with an Estimate of the Air's Gravity with re-

(*b*) Newton's Princip. Philosoph. Mathem. lib. ii.
p. 23. spect

spect to other Fluids, or its Pressure upon the Surface of our Bodies, these being not only done already, but the Alterations thence arising short and variable; which tho' perhaps the Cause of some short-liv'd Disorders, have yet little or no Share in producing those Effects in the Animal Oeconomy, which are constant and permanent, as are the Causes of the Diseases here spoken of, which take their Rise rather from the sensible Qualities of the Air, as are its Heat or Cold, Dryness and Humidity, and its greater or less Stock of Animal, Vegetable, and Mineral Particles.

The Alterations caus'd in the Air by Heat and Cold, are its Rarefaction and Condensation, by which it is obliged to fill a larger, or be crowded into a less Space; as is sufficiently Evident from numerous Observations and Experiments (c): And its Elasticity being proportional to its Condensation, will on this

(c) *Boyl's Experimental History of Cold.*

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Account also be much alter'd, as appears from several Places of the forecited Author (d).

The Changes caus'd by its Moisture or Dryness, are the clogging or facilitating the Motion of its Spring, whereby it becomes more or less fit for Respiration. To which may be added its Effects in relaxing or contracting the Fibres of the Body, by which Perspiration the greatest, as well as most useful Excretion of the Body, is much lessen'd or encreas'd.

The Changes arising in the Air by the Vaporous Steams and Exhalations of Animal, Vegetable, or Mineral Substances, depending on the different Disposition of the Animal Juices, the different Productions and Nature of the Soil, and various Composition of Metallic and Mineral Bodies, I shall refer them to those Places, where I shall particularly treat of the Changes wrought in the Animal Body by their Means. Only so far in

(d) Experiments concerning the Spring of the Air.

general I shall premise, that all Vaporous Exhalations do clog its Spring, and weaken its Elasticity (*e*), and produce infinite Variations in the Animal Oeconomy, as they contract or relax the Fibres, ferment, dissolve, or coagulate the Animal Juices, or stimulate the Solids to more strong and frequent Vibrations.

(*e*) *Boyle* of Animals shut up with Air in the Receiver, or *Philosoph. Transact.* No. 63. *Mead* on Poisons, *Essay* 5th.



CHAP. II.

THE Situation of Places, with regard to their healthful or noxious Qualities, tho' much neglected by the Moderns, (the Generality of Mankind being solicitous in choosing such Places of Abode, as are most convenient for their Domestic Affairs, and advancing their Fortunes, rather than the prolonging their Healths, and improving their Con-

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Constitutions,) was by the Ancients thought worthy of their strictest Enquiry and Observation ; as appears from the admirable Rules deliver'd by some of their greatest Writers. Nay so very solicitous were they in Matters of this kind, that as *Vitruvius* informs us (f), they used to inspect the Entralls of Beasts pasturing in those Places, which if any ways unsound or tainted, was not only a sufficient Motive to prevent any design'd Structure, but to hinder the carrying on of what was already begun.

The Ancients, and that not ill, divided their Situations with respect to the Air, into such as lay expos'd to the warm or cold Winds ; Of the first kind, were those which came from all the Points of the Compass, between the *Rising* and *Setting* of the Sun in *Winter*, which are most Points of the *South-East* and *South-West*, but more strictly those included between the *South-East* by *East* Point,

Of Situations in respect of the Winds

(f) *De Architect.* lib. 1. cap. 4

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and the *South-West* by *West* Point of the Compass; and distinguish'd among the *Greeks* by *Ευρος, Ευρονότος, Νότος, Λιβόνος, Λιβ;* among the *Latins* by *Vulturnus, Phænicus, Auster, Austro-africus, and Africus*; containing, according to the present Division of the Compass, the *South-East* by *East, South-East, South-East* by *South, South South-East, South* by *East, South, South* by *West, South South-West, South-West* by *South, South-West, and South-West* by *West*. Of which *Vulturnus* was esteem'd dry and warm, the rest warm and moist (g). Of the latter sort, are those coming from the Points contain'd between the *Setting* and *Rising* of the Sun in *Summer*, which are most Points of the *North-East* and *North-West*, but especially from the *North-East* by *North* Point, to the *North-West* by *West* Point of the Compass, distinguish'd among the *Greeks* by the Names, *Απρύνος, Ορασνίας, Απασκτίας, Βορέας*; among the *Latins*, by *Caurus* sive *Corus*,

(g) *Plinii Hist. Nat. lib. 11. cap. 47.*

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Circius, Septentrio, Aquilo, of contrary Qualities to the other; containing with us the *North-West* by *West*, *North-West*, *North-West* by *North*, *North North-West*, *North* by *West*, *North*, *North* by *East*, *North North-East*, and *North-East* by *North*.

They had likewise other Divisions, or rather Appellations of the Winds, as the *Etesiaë* which blew in *June*, the *Ornithiaë* in *February*, *Favonius* in *March*; as also Winds peculiar to particular Countries and Places, as *Sciron* to the *Athenians*, and the like: But these being no way different from several of those already mentioned, except in their being peculiar to certain Places and Seasons, I shall not trouble the Reader with an Account of them.

The different Qualities of Winds are not to be accounted as so many Changes in the Nature of Air it self, that being only a thin Compressible and dilatable Fluid, equally susceptible of benign or

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of Winds,
whence
derived.*

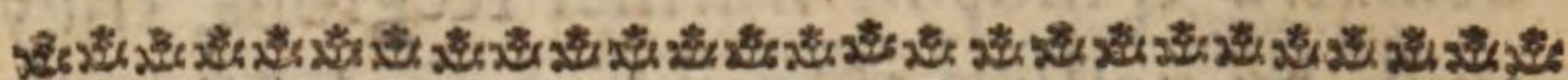
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noxious Qualities, but owe their Origine to the various *Climates*, Tracts of *Earth*, *Water*, and the like, over which they pass. Thus the *South* which with us is generally warm and moist, by its passing the Torrid Zone and great *Southern Ocean*, is to those in equal Latitude, on the other *Side* the Line, of quite contrary Qualities, and equally cold with ours from the *North*. On which Account, the first Thing necessary to be taken Notice of, with Regard to the Healthfulness of Situations in Respect of the Winds, is the Climate and Latitude of the Place; those Winds being noxious in one Clime, which in another may have quite contrary Qualities, agreeable to *Baptista Porta's* Observation, *viz.* That the *South* Wind, which by most of the Ancients is condemned, is not in all Places unwholesom (*h*); and undoubtedly the farther any Place is situate toward the *North*, whatsoever may be the Qualities of the

(h) *Joan. Bapt. Port. Villæ*, lib. 1. cap. 22.

Southern Winds in warmer Regions, they will, by passing through a cool Climate, acquire very different, if not contrary Qualities. Hence we may, in a great Measure, reconcile the different Opinions of those who have wrote on this Subject, some commending a *Northern* (i), others a *Southern* Situation (k), both which in different Climates and Circumstances may hold true; The *North* Winds under the Frigid Zone being more prejudicial than those from the *South*, and *Vice Versa*. Which Caution I shall desire the Reader to observe, it being impossible to determine any Thing so peremptorily in this Case, as not to be liable to particular Exceptions.

(i) *Hip. de Aeribus Cels. lib. 2. cap. 1. Constantini Cæsaris Γεωπονικῶν, lib. 2. cap. 3. (k) Bapt. Port. Loc. Citat.*



C H A P. III.

Of Situations towards the warm winds and their Effects.

THE Situations respecting the warm Winds, and especially such as are moist withal, are generally condemn'd by the Ancients as Unwholesom, and serving to relax and enervate the Body, and render it less capable of enduring the Fatigues of War, Labour, and other Accidents of Human Life (1). And indeed 'tis the undoubted Property of Heat not excessive, and especially when join'd with Moisture, to relax and weaken the Fibres of the Body, whereby they become less Springy and Elastick, and their Vibrations more weak and slow. But besides this Relaxation of the Animal Fibres, and especially such as are Cutaneous and most expos'd, the Air's Spring

(1) *Hippoc.* Loc. Citat. de Morb. Sacr. XV. *Aph.* P. 3. A. 5. 17. *Cels.* Loc. Citat. *Plinii* Hist. Nat. lib. 2. cap. 17. *Vitruv.* lib. 1. cap. 5. *Cardan.* de Rerum Varietat. lib. 1. cap. 8. *Tho. Bartholin.* Obs. Med. & Philosoph. Vol. 5. Obs. 113. pag. 294. *Lemn.* de Occult. Nat. Mirac. lib. 3. c. 3. p. 283.

being

being weakned by Heat, and clog'd with Vapours, will be less able to expand the Pulmonary Vesicles; and thence the Globules of the Blood be less broken and divided, the Consequence of which must be a more languid and slow Circulation of the Blood, arising partly from the increas'd Viscosity of the moving Fluid, and its Inaptitude to pass the small Canals, and fine Meanders of the Body; and partly from a Defect of Spirits to contract and actuate the Heart, the Quantity of minute and separable Particles decreasing, as the Number of those requisite for forming the more gross and tenacious Fluids is augmented; which will not only increase the Relaxation of the Fibres, and render the Body more weak and effeminate, but also prevent the due and regular Expulsion of the perspirable Matter (*m*). For the Quantity excreted being always Proportional to the Velocity of the Fluid, and its Aptitude to be discharg'd, as well as Largeness of the

(*m*) Sanctorii Med. Stat. P. 2. Aph. 8.

discharging Orifice, will in these Circumstances be lessen'd in Proportion. For the Perspirable Fluid, being assisted chiefly in its Motion by the Vibrations of the Fibres, will when these are relax'd move with a less Velocity, and consequently less be thrown off this way in a given Time, than is requisite to a Healthful State. This greater Quantity being retain'd, and gradually heap'd up in the Vessels, (if it cause not a Fever,) will, by its Resistance to the circulating Fluids and Weight on the Vessels, distend their Coats beyond their usual Dimensions, and thereby so relax and weaken their Tone, as to render their Vibrations more languid and slow; Whence, as also from a more languid Contraction of the Heart, the intestine Motion of the Particles of the Blood being abated, their Cohesions will be increas'd, and Obstructions form'd in the Capillary Vessels, and especially in such Parts, as are of a more lax and weak Texture, and thereby less able to break and divide these

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viscous Cohesions. Which, either by stagnating in particular Places, obstruct the Passage of the circulating Fluids, and pervert or destroy the Use of some of the *Viscera*, and produce a long Train of Symptoms consequent thereon; or by being putrified and attenuated by the Heat and Motion of the Body, are again resorb'd into the Blood, and produce those vicious Ferments visible in Putrid, Malignant, and Pestilential Fevers (o). Hence it will be no difficult Matter to account for the Observations made by the Ancients, on the Inhabitants of Places thus situate, which are the necessary Consequents of the Alterations now recited, as are a *Languid Appetite* and *Weak Digestion*, *Dulness of the Faculties*, *Too great Corpulency*, *Inactivity*, *Pusillanimity*, *Pale and Languid Complexions*, and the like (p).

(o) *Bellini de Febribus. Mead on Poisons.*

(p) *Hippoc. Loc. Citat. & Lib. de Humoribus, P. 8. Galen. de Animi Moribus, P. 8. & 9. Plinii Loc. Citat. Ld. Verulam's Sylva Sylvarum, Cent. 4. Pag. 38.*

And as the Natural Constitution of the Body is on this Account alter'd, so no less do the Diseases, incident to those People, owe their Origine to this State of the Body; of which kind in Children are *Rickets*, *Ruptures*, *Convulsions*, *Asthma's*; In those more grown, *Scrophulous* and *Strumous Swellings*, *Worms*, *Green-sickness*, *Obstructions*, *Consumptions*; In Women, *Frequent Abortion*, *Barrenness*, *Fluor Albus*; In grown People, *Diarrhea's*, *Dysenteries*, *Lingring* and *Malignant Fevers*, *Ichorous Ulcerations*, *Cachexies*, *Consumptions*, *Empyema's*; In older Persons, *Lethargies*, *Palsies*, and the like: Which Diseases, tho' found in all kinds of Situations, are yet most frequent in these (q).

(q) *Hippoc. de Aeribus & Aphor. p. 3. Aph. 16. Epidem. lib. 3. Galeni Com. in hunc Loc. & de Temperaturi, lib. 1. Vitruvii, lib. 1. cap. 5. Lemn. pag. 283. & 287. Zacut. Lusitan. Introit. ad Prax. Præcept. 47. Sanctorii Med. Static. P. 2. Aph. 6. Baglivii Prax. Med. lib. 1. cap. 15. pag. 3. & 4. Bellini de Morb. Cap. pag. 466. Floyer on the Asthma.*

Another, and that no small Inconvenience, arising from a Situation expos'd to only the warm Airs, is its making the Inhabitants more obnoxious to a Retention of the Perspirable Matter, or as we commonly say, *To taking Cold*, upon more trivial and slight Occasions, than those who are accusom'd to a colder Air. For the Sensations of Heat or Cold depending, in a great Measure, on the Disposition of the Body subject to their Impressions, the same Degree of Heat or Cold will in different Subjects, or the same Subject at different Times, have quite contrary Effects; And what at one Time will contract, at another will relax the Tone of the Fibres.

But tho' these kinds of Situations are generally esteem'd less Healthful than the opposite, yet are they extreamly various, as they are more or less expos'd to the cold Winds, as they are placed in a high or low Part of the Country, or are contiguous to large *Woods, Moors, Fenns,*

Fenns, Marshes, and the like, which either by correcting, or increasing their noxious Qualities, render their Effects proportionally Hurtful, or the contrary.

*How best
prevented.*

From what has been said it will follow, That the most likely Method to prevent the Inconveniences arising from Situations of this kind, are Meats and Drinks which moderately attenuate and dissolve the Viscous Juices, and contract and strengthen the decay'd Tone of the solid Parts; moderate Exercises in a cool and dry Air, Cold Bathing, and the like.



C H A P. IV.

Of Situations towards the cold winds

THE Situations respecting the Cold Winds, though generally esteem'd by the Ancients more wholesom than the former, on Account of their being more dry and contracting, and thereby giving a greater Energy to the Fibres of the

the Body (*q*), are yet attended with many Inconveniencies, arising from the contrary Extream, *viz.* The too great Rigidity, and Contraction of the Animal Fibres; which rendring them less capable of those easy and natural Distensions, which are requisite to the Conservation of the Animal Oeconomy in its natural and healthful State, increase their Resistance to the circulating Fluids above its ordinary Pitch, and thereby subject them to *Inflammations, Obstructions, Ruptures of the Capillary Arteries, Hemorrhages*, and the like. Besides the Air being condens'd, and crowded into a less space by the Cold, will when admitted into the Lungs in Respiration, by the Warmth of the Place, be more forcibly expanded, and not a little endanger a Breach in the delicate Structure of the Pulmonary Vessels; or however so com-

(*q*) *Hippoc.* de Morb. Sacr. XV. 21. & loc. citat. *Cels.* loc. citat. *Plinii* Hist. Nat. lib. 2. cap. 47. *Vitruv.* loc. citat. *Levin. Lemn.* de Oec. Nat. Mirac. pag. 293. *Bartholini* Acta Med. Vol. 5. Obs. 113. P. 294.

press and streighten the Blood Vessels, as to render the Passage of the Blood more difficult and hazardous; Whence proceed *Obstructions, Inflammations*, and the like; and especially if to these be added that greater Contraction of the Pulmonary Fibres, by the immediate Application of the cold Air, which at the same time straitning the Cavities of the Vessels, must considerably augment the Difficulty of the Blood's Passage; which it has sometimes done to that Degree, as to throw the Party into swooning and fainting Fits (q). Nor are the Solids alone, but the Fluids also affected by an Air too cold and piercing; especially the Blood, which in its Passage through the Lungs, will be render'd more dense, and unfit to pass those delicate Strainers, and thereby become more apt to stagnate in the Capillary Vessels, so as not a little to contribute towards producing the formentioned Effects.

(q) *Fabric. Hildan. Observ. Chirurg. Cent. V. Obs. 34.*

That this is the Case of the Inhabitants of Places thus situate, is evident from the Observations of Physicians, particularly those of the great *Hippocrates* (r), all which show a great Tenuity and Rigidity of the Fibres, as are a *Rough, Fierce, and Cholerick Disposition, Strength and Activity of Body, the easie enduring great Fatigues, a voracious Appetite, and strong Digestion, and the like* (s). Nor does this appear only by the general Disposition and Constitution of those People, but also by the Diseases to which they are particularly subject, of which kind are *Acute Fevers, Pleurisies, Peripneumonies, Suppurations and Ulcers of the Breast and Lungs, Stranguries, Angina's, Ophthalmia's, Epilepsies, profuse Bleedings at the Nose in young People during the Summer Months, Barrenness in their Women,* not as in the former from the Laxity of

(r) *De Aeribus Aq. & Loc.* (s) *Hippoc. loc. citat. Galen. de Temperamentis, L. 2. P. 12. & Lib. quod Animi Mores Corporis Temperaturas sequuntur, P. 89. Sanctorii Med. Stat. P. 2. Aph. 1. 7.*

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the Fibres, and Cachectic Habit of Body, but their too great Rigidity, and frequent Suppression of the menstrual Pur-gations (*t*).

Hippocrates indeed adds *Longevity* as a *Salvo* to the Inconveniences accruing from these Situations, which 'tis not improbable may in general hold true. For, not only the Natural Frame and Constitution of the Body is more firm and robust, and therefore if it escape the above named Acute Diseases, which most frequently happen in Youth, or the Middle-age, is the more likely to hold out to a longer Period; but the same great Author has observ'd, which is also unanimously confess'd by Physicians, That *Lean People*, and such are generally found in those Situations (*u*), are commonly longer liv'd than those of a more Gross, Fat, and Phlegmatic Constitution (*w*), which are most frequently found

(*t*) *Hippoc.* de Acrib. Lib. de Humorib. viii. *De Morb. Sacr.* xv. Aph. Sect. iii. Aph. 5. 7. 17.

(*u*) Loc. Citat. (*w*) *Aphor.* Sect. iii. Aph. 44.

in a moist, and foggy Air. And I believe the general Accounts of *Longevity* will confirm thus much, That the Inhabitants of a cold, dry and clear Air, do *cæteris paribus* hold out to a longer Term of Life, than those who live in a moist and foggy one, whether warm or cold (x). Nor is it less probable, notwithstanding *Aristotle's* Opinion to the contrary (y); That the Inhabitants of the Northern and Cold Countries, exceed the Age of those inhabiting the more hot and parching Climates. *Joan. Leo* acquaints us, That the Lives of the *Negroes* are exceeding short (z), and *Archigenes* and *Crescentiensis* assure us, That they are old at Thirty (a); Nor is it improbable that the scorching Heat of the Sun in that Clime, shou'd by evaporating

(x) *Philosoph. Transact.* No. 44. P. 886. No. 221. P. 266 & 267. No. 228. P. 543. No. 160. P. 597. No. 261. P. 502. *Ld Bacon's Hist. of Life and Death.* *Plot's Hist. of Oxfordshire*, cap. 2. pag. 1, 2, 3. *Of Staffordshire*, cap. 8. a Sect. 91. ad 107. (y) *Lib. de Long. & Brevitat. Vitæ.* (z) *Description of Africa*, lib. 1. (a) *Petri Crescentientis de Agricult.* lib. 1. cap. 5.

the more thin and useful Juices, increassing the Remainder, and desiccating the solid Parts, sooner exhaust the Body, and bring it to a more early old Age.

*How best
prevented.*

The most probable Means to prevent the Inconveniences arising from Situations of this kind, all which take their Rise from a too great Rigidity and Contraction of the solid Parts, and Condensation of the Fluids, as has been already shown, must be such as are capable to relax and supple the too stiff and inflexible Tone of the Solids, and dissolve the condens'd and coagulated Fluids; Of which kind are Meats and Drinks moderately diluting and relaxing, especially such taken actually warm, Warm Bathing frequently repeated, Care being always taken, by the gradual Use of Baths more cold, to prevent the Inconveniences which might arise from the sudden Application of the cold Air, and giving an immediate Check to the Perspirable Matter, than which nothing can be more disadvantageous.

CHAP.



C H A P. V.

BESIDES the two preceeding general ^{Of an Eastern Situation.} kinds of Situations, with regard to the Winds, and the Parts of the World from whence they are derived to us, the Ancients had also two others, which tho' generally by them applied to the Air, relate more strictly to the Position of the Place, in respect of the Sun, and his Rising or Setting upon it. The Situations here spoken of are, *First*, Such as respect that Part of the Compass, between the Rising of the Sun in Summer and Winter, which are those contain'd between *Aquilo* and *Vulturnus*, or those between the *North-East* by *North*, and the *South-East* by *East*, call'd by the *Greeks* *Kavias*, Ἀπηνλιώτης; by the *Latines*, *Cæcia* and *Subsolanus*, containing according to the present Division of the Compass, the *North-East*, *North-East* by *East*, *East*

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North-East, East by North, East, East by South, and East-South-East. Secondly, Those respecting the Points between his Setting in Winter and Summer, viz. between *Africus* and *Corus*, containing the *West-South-West, West by South, West, West by North, and West-North-West.*

Of these the *Easterly* Situation was always esteem'd most wholesome, and preferable not only to its Opposite, but likewise to those before describ'd, whether such as lay expos'd to the *South* or *North* (b). The Advantages accruing from a Situation of this kind, are a more early Dissipation of the Dews and Vapours condens'd by the Cold of the preceeding Night, upon the Approach of the Morning-sun, which otherwise by their Stay wou'd clog the Air's Spring, and render it less fit for Respiration; And not only so, but the Perspirable Matter, which in the Morning ought

(b) *Hippoc. de Aerib. de Morb. Sacr. XV. 7. Cels. lib. 2. cap. 1. Plinii Hist. Nat. lib. 2. cap. 47.*

to pass off most freely and easily (c), will by the vaporous Steams and condens'd Exhalations clogging the Motion of the Cutaneous Fibres, and obstructing the Orifices of the Vessels, be in some degree intercepted; both which Inconveniences in these kinds of Situations are, for the Reasons already mentioned, in a great Measure prevented.

Another, and that no small Advantage, is the more equal Temperature of the Air, with Regard to Heat or Cold, the Extremities of which, so far as the Climate will allow or requires, being best avoided by a Situation of this kind, and the Inconveniences arising either from hot and pernicious Gusts of Wind from the *South*, and the chilling Blasts from the cold Winds in a great measure prevented, or render'd of less fatal Consequence. *Hippocrates* (d) remarks of the Inhabitants of these Places, That they are generally

(c) *Sanctorii Med. Static. Sect. iv.* (d) *Lib. de Aer. Aq. & Loc.*

well complexion'd, of a florid Countenance, a clear Voice, a quick and ready Wit, and the Diseases to which they are subject, few, short, and easily vanquish'd; several of which are likewise observ'd by *Galen* (e).

The same great Authors, as also others of the Ancients, compare a Situation of this kind for its Salubrity to the Spring of the Year, and the salutiferous Qualities attending That more than other Seasons, and indeed not without Reason, the Morning-sun dispelling the cold and damp Vapours, correcting the Coldness of the Air, affording a free and easie Discharge to the Perspirable Matter, and thereby exhilarating the Spirits, and enlivening the whole Animal Oeconomy, in the same manner as the approaching Warmth of the Vernal Sun, dissolves and rarefies the coagulated Juices, unlocks the Pores both of Plants and Animals

(e) *Lib. quod animi mores Corporis Temperaturas sequuntur*, Pag. 8, 9.

shut up by the Winter's Cold, and gives fresh Life and Vigour to the whole Animal and Vegetable World. And I doubt not but 'tis on this Account, as well as to prevent Dampness and Mouldiness, that *Vitruvius* orders all Libraries a Situation of this kind (f), nothing contributing so much to a sedate, easie, and cheerful Disposition of Mind, as a Regular and free Perspiration (g).

But notwithstanding this Situation, as respecting the Morning-Sun, is preferable to the rest, for the Reasons already given, yet ought we to be herein guided by the Climate and Latitude of the Place, approaching or receding from the warm or cold Winds, in Proportion to the Warmness or Coldness of the Country: Agreeable to which is the Doctrine of *Pliny* who in hot, close, and sultry Countries advices a Situation toward the *North*, in cold ones toward the *South*, and an Ea-

(f) *Sanctorii Med. Static. P. 7. Aph. 13.* (g) *De Architect. lib. 6. cap. 7.*

stern to those Inhabiting a Temperate Clime, viz. *Speciare in Æstuosis locis Septentrionem debet, Meridiem in frigidis, in temperatis Exortum Æquinoctialem* (h). So that considering the Latitude of this Country, with Respect to Greece or Italy, where the best Observations relating to Situations were made, it cannot be amiss to approach at least a Point or two nearer the South, reckoning from the Point *Cæcia* or *Hellespontius* to *Phænicus* or *Euro-notus*, instead of those afore-mentioned, containing the *East-North-East*, *East by North*, *East*, *East by South*, *East-South-East*, *South-East by East*, *South-East*, and *South-East by South*. The Wind *Vulturnus* being esteem'd only warm but not moist, which in this Latitude may, I think, be easily dispens'd with: Nor is this less agreeable to the Advice of *Palladius*, who wou'd have all Buildings to front the South, so as to enjoy the Morning-Sun in Winter, but turn'd a little from

(h) *Plinii Nat. Hist. lib. 18. cap. 6.*

the Winter West, the better to avoid the Summer Heats ; his Words are, *Totius Fabricæ tractus unius lateris longitudine in quo frons erit Meridianam partem respiciat, in primo angulo excipiens ortum solis hyberni, & paululum ab occidente avertatur hyemali; ita proveniet ut per hyemem sole illustretur, & calores ejus æstate non sentiat* (h).

(h) *Rus. Pallad. de Re Rustica, cap. 8. de Ædificio.*



C H A P. VI.

AS the preceeding Situation is by most ^{Of a Western Situation.} Authors judg'd the most healthful and pleasant, so its opposite, *viz.* That respecting those Points between the Setting of the Sun in Winter and Summer, the particular Points of which I have already recited, is reputed of no less contrary Qualities. For, in a Situation of this kind, it must necessarily happen, that

that the Morning-Sun will be for some Time intercepted, and the Dews and Vapours condens'd by the Cold of the preceeding Night, which should be early dispers'd, hang longer in the Air, which join'd with its Coldness through the Absence of the Sun, must necessarily contract the Fibres, incrassate the Fluids, obstruct the Cutaneous Passages, and in a great measure prevent the due Expulsion of the perspirable Matter. This greater Quantity will, by its Resistance to the circulating Fluids, and Weight on the sides of the Vessels, gradually distend their Coats beyond their Natural Pitch, which abating the Strength and Frequency of their Vibrations, must retard the Velocity and Force of the circulating Fluids, so that returning more seldom to the Lungs they will be less broken and divided, and thereby necessarily become more Viscous, and unfit to form the fluid Secretions. Whence the Quantity of animal Spirits decreasing, the Heart must be less frequently and strongly

ly

ly contracted, the *Impetus* of the circulating Fluids upon each other much abated, and the whole Mass become more Viscous, and apt to form such Cohesions as are by no means consistent with a healthful State, but either pervert, or deprive us of the Use of some of the *Viscera*, or by obstructing the Passage of the more thin Liquids, force them to corrode and penetrate the Coats of such Vessels, as are more tender and delicate, or by stretching the Pores beyond their usual Dimensions, to seek new and unnatural Passages.

Hence it will be no difficult Matter to account for all the Inconveniences attending a Cold, Moist, and Foggy Air; of which kind are, *Dulness* and *Stupidity*, *Rheums*, *Coughs*, *Defluxions*, *Hoarsnesses*, *Pale* and *Languid Complexions*, *Loss of Appetite*, *Inactivity*, a *Cachectic* and *Scorbutic Habit of Body*, *Scrophulous* and *Strumous Swellings*, *Agues*, especially *Quartans*, *Lingring Fevers*, *Dropsies*, *Faundies*, *Asth-*
ma's

ma's, Obstructions, Consumptions, and the like (i).

Besides the Inconveniences here mention'd, depending on the Coldness and Moisture of the Morning Air, there are others depending on its sudden Change from the Rising of the Sun upon them, which must necessarily be advanc'd some Part of his Course, before they be visited by his Rays. Which sudden and great Degree of Heat, join'd with the Moisture of the Air, will subject them besides the Diseases already mention'd, to those attending a hot and moist Disposition of the Air, especially *Putrid, Malignant, and Pestilential Fevers, Fluxes of the Belly, Dysenteries*, and the like, which in the Summer must frequently attend them (*k*). And in short they will, directly contrary to the Rule of *Palladius (l)*, be de-

(*i*) *Hippoc. de Aerib. Lemn. Loc. Citat. Vitruv. Loc. Citat. Sanctorii Med. Static. Pag. 2. Aph 60. Sydenham de Feb. Intermit. Wainwright's Non-naturals, P. 69. Floyer on the Asthma.* (*k*) *Hippoc. Loc. Citat. Epidem. 1. P. 2. Galeni Com. in hunc Loc. Cels. Loc. Citat.* (*l*) *Rut. Pallad. de Re Rustica Loc. Citat.*

priv'd of the comfortable Warmth of the Sun in Winter, and expos'd to his most sultry and scorching Heats in the Summer Months, which contrary Qualities must necessarily be the Parents of many and dangerous Diseases.

As the former Situation is by the Ancients compar'd to the *Vernal*, so is this to the *Autumnal* Season, which being commonly cold, moist, and unequal, incrassates the Juices both of Plants and Animals, almost wholly disrobing the former, and being the constant Harbinger of innumerable Maladies and Diseases to the latter. Whence 'tis no wonder, that Physicians have observ'd the same Diseases which are the Consequents of this Situation, to be likewise familiar to an *Autumnal* Season, both of them being cold, moist, and uncertain.

The most likely Means to prevent the Inconveniences attending a Situation of this kind, are Meats and Drinks which attenuate the Viscous Concretions, contract the Tone of the Solids, and promote the regu-

*Effects of
it how best
prevented.*

regular and constant Expulsion of the perspirable Matter, frequent and strong Exercises, cold Bathing, the Use of the Brush, and the like.

What has been said upon these four kinds of Situations, with Relation to the Winds, and their Qualities, exclusive of any Alterations from the adjacent Country, may be so easily, at least so far as is necessary, applied to any particular and intermediate Points of the Compass, as they are more or less distant from the Extremities of each Division, that it wou'd be only trifling with the Reader to insist upon them, and especially considering the infinite Variety of Situations, with Regard to the Nature and Position of the Country adjacent, being on different sides either *Hilly, Rocky, Woody, Open, Hollow, Dry, Watry*, and the like. Whence it may so happen, that those Parts, which according to the general Qualities of the Winds, are situate toward the dry Winds, may by being contiguous

iguous on that side to large Fenns, Bogs, Lakes, Seas, &c. have the general Qualities of the Winds, if not contrary, yet very different from those of the neighbouring Parts, whose Situations are different in this Respect. I shall therefore in the next place consider the Nature and Effects of Situations, with Regard to the Qualities, and Position of the Country adjacent, agreeable to the Advice of *Crescentiensis*, viz. *Qui loca eligit habitabilia, cognoscere debet quomodo ejus existit dispositio secundum altitudinem & profunditatem, discooperturam & cooperturam — & si sit Ventis exposita, aut in Terra profunda* (1), i. e. Whoever chooses a Seat ought to consider its Situation, whether on a Hill or in a Vale, open to the Weather or close shelter'd; expos'd to the Winds, or in a low hollow Country.

(1) *Petr. Crescentiens. de Agricult. lib. 1. cap. 5.*



C H A P. VII.

Of Situations in respect of the Country adjacent.

THE Situations of Places differ in Respect of the Qualities of the Soil and Country adjacent ; *First*, As an *Island*, or Part of a *Continent*, as more remote, or immediately adjoining to *Seas*, *Lakes*, *Rivers*, and the like. *Secondly*, As they are *High*, *Low*, *Flat*, *Hollow*, *Open*, *Woody*. *Thirdly*, From the Nature and Qualities of the Soil, whether *Dry*, *Moist*, *Sandy*, *Clay*, *Marly*, *Stony*, *Moorish*, *Boggy*, *Marshy*, scanty or abounding with *Metals*, *Minerals*, *Grotto's*, *Vulcano's*, *Springs*, *Lakes*, *Rivers*, &c.

Of Islands and Continents.

The Difference in the Air of Places situate in *Islands*, from those far up in the *Continent*, is chiefly owing to the greater Humidity of the former, arising from the Vapours exhal'd out of the adjoining *Seas* ; which being either carried along with the *Winds* in the Form they

they are exhal'd into the adjoining Parts, clog the Air's Spring, and render it less fit for the necessary Uses of human Life; or being buoyed up higher in the Air, pass in the Form of Clouds farther up into the Country, which being obstructed in their Motion by Hills, Rocks, Mountains, or other Accidents, fall down in Showers on the subjacent Country: A great Part of which being again exhal'd, and carried up into the Air by the Rays of the Sun, must clog its Spring and increase its Humidity. That the Air must be vastly different on this Account, is evident from the Experiments and Computation of the Quantity of Vapours exhal'd by the Sun, publish'd by the ingenious Mr. *Halley* in the *Philosophical Transactions* (*m*).

Besides its commonly known, That Frosts in Islands, tho' placed in the same Latitude with the Inland Parts of a Continent, are always less severe, the Snows

(*m*) No. 189. Pag. 368.

Of Endemic Diseases.

less frequent, and of shorter Duration, both which are owing solely to the greater Humidity of the Air, which in the one during the Winter is commonly *Dry, Clear, and Frosty*; in the other *Moist, Foggy, and fill'd with Vapours*. This is also evident from the speedy melting of Snows on the Sea-coasts, where also the Frosts are less severe and sharp, than in the inland Parts of the same Country. Consonant to this is the Observation of *Strabo* on this Island, which he asserts to be more subject to Rains than Snows (n): Which can be owing to no other Cause but the greater Humidity, and less freezing Quality of the Air. Agreeable also to this is that of *Julius Caesar* (o), where he compares the Air of this Country with that of *France*, and asserts the less Severity of its Frosts. To which also *Tacitus* agrees, when he blames the Air as thick and

(n) *Strabon. Geogr. lib. 4.* (o) *Julii Caesaris Comment. Lib. V. de Bello Gallico.*

foggy, from the frequent Clouds and Rains (o). This greater Humidity, and less Degree of Coldness in the Air of Islands, in Respect of that of Continents situate in the same Degree of Latitude, and in other Respects perfectly equal, is farther confirm'd by numerous Instances and Observations of the most celebrated ancient and modern Authors (p), who assign the same Reasons for it which I have done.

The Difference then of the Air of Islands, in Respect of that of Continents, consisting chiefly in its Humidity, and greater Stock of Vaporous Steams and Exhalations, must necessarily render the Inhabitants of the former, subject to the Diseases attending a moist and foggy Air, either warm or cold, in Proportion to the Heat or Coldness of the Climate, Lati-

(o) Tacit. de Agric. cap. 12. (p) Hippoc. de Diet. lib. ii. & iii. 6. Cels. lib. 2. cap. 1. Antyllus de Differentia Aeris secundum locos in Joan. Stobæi de Sanitate 99. Ld. Bacon's Nat. Hist. Cent. iv. 383. Camden's Britannia, pag. 2, 3. Bartholini Act. Med. Vol. 5. Obs. 113. De Aere Hauniensi, p. 298.

tude of the Place, and the like; which Diseases being already enumerated, I shall not trouble the Reader with an Account of them.

Of Situations on the Sea-Coasts.

What has been said of Islands, in Respect of the Continent, may for the most part be applied to such particular Places as are situate on the Sea-coasts; in Respect of those higher up in the Country, whether Island or Continent, with this only Difference, That the saline Particles, which by the Force and Dashing of the Waves, and Violence of the Winds, are thrown up into the Air, and float in it, and are of a drying and attenuating Nature, do in Places immediately situate on the Sea-shore, very much correct the Humidity of the Air, and sometimes so over-power its Force, as to render the Air of these Places drying and contracting. On which Account, the Ancients often remov'd their Patients, afflicted with *Dropical* and *Oedomatous Swellings, Ulcers, Defluxions*, and the like, into

into these Airs (*q*). The greatest Inconvenience attending these Situations is the *Scurvy*, to which they are all subject, who inhabit the Sea-coasts, arising partly from the saline Particles floating in the Air, and partly from the Saltness of their Diet, the greatest Part in these Places being Sea-faring Men (*r*). This is brought about chiefly by the saline Particles rarifying and uniting with the Viscous Juices, and rendring them acrid and pungent, whence the more gross and grumous Part of the Blood, not being sufficiently divided thro' its unequal Texture, will be apt to stagnate in the Capillary Vessels, and cause red, black, blue, and livid Spots; and the more thin and acrid Part by its Pungency corrode the Vessels, and cause *Itchings, Cutaneous Eruptions, Rotten Gums, Stinking Breath, Rheumatic Pains*, and the like.

(*q*) *Cæli Aureliani. Morb. Chron. lib. 3. cap. 8. Stabæi loc. citat. Aetii Tetrab. 1 Serm. 3. cap. 162.*

(*r*) *Cockburn of the Diseases of Seamen.*

But much worse still than these, are those Situations which are contiguous to such Waters, as either constantly, or for the most part stagnate and putrifie, and thence not only fill the Air with noisom and offensive Vapours, but prove often the immediate Cause of *Putrid, Malignant, and Pestilential Fevers*, nay even of the *Plague* it self (s). Which Effects will be different in respect of the Climate, the *Fætor* and Corruption of the Waters being much greater in a hot, than cold Country; as also from the Position of the Place and Waters, with Regard to the warm or cold Winds: The Warmth and Humidity of the Southern Winds, join'd with the Vapours arising from the Waters, disposing the Air to a more unhealthful Disposition, than when driven toward the Land by a clear, dry, and cool Air.

(s) *Diog. Laert. Lib. 8. Segm. 79.* Boyle of the Saltness of the Sea.



C H A P. VIII.

THE Effects arising from a Situation in Respect of its being plac'd in a high, or low Part of the Country, may be reduc'd to the greater Clearness, and Coldness of the Air of the former, and the contrary Qualities of the latter, and its greater or less Pressure on the Surface of our Bodies.

That the Air of Places situate upon a moderately rising Ground is more dry, clear, and healthful, and consequently more eligible, than that of those in a low Part of the Country, will I believe be denied by none, the Air being more agitated, and Vapours dispers'd by gentle Breezes, the Soil more dry, and the Waters, which generally in low Countries stagnate and putrifie, passing off in quick and rapid Streams, both which are absolutely necessary to a healthful Situation;

tion ; yet, an Excess in Height is attended with Consequences equally Hurtful with those of the lowest Situations, the Air on the Tops of the highest Hills being necessarily unhealthful, and equally, if not more unfit for Respiration, than that of the lowest Vallies.

*Of the Air
on the Tops
of the high
est Hills.*

For, The Air of such Places being considerably more light, rare, and thin, as appears by the subsiding of the *Mercury* in the *Barometer*, in Proportion to the Height to which it is rais'd, above the plain Surface of the Earth (*t*), and the fore-cited Place of Sir *Isaac Newton* (*u*), will not only by its too great Lightness become unfit to counterbalance the Heart, and Muscles serving to Respiration, but its Elasticity which is proportional to its Density, and Pressure of the Incumbent Fluid, must be proportionally abated (*w*). Hence the Vesicles of the

(*t*) *Philosoph. Transact.* No. 299. p. 582. No. 236. Pag. 2. Mr. *Lock's* Letter in Mr. *Boyle's* History of the Air. (*u*) *Princip. Philosoph. Mathem.* lib. 2. Prop. 23. (*w*) See Chap. I.

Lungs will not be sufficiently expanded, the sanguineous Globules less broken, and the Passage of the Blood through them more difficult (*x*), the Consequence of which must be *Difficulties of Breathing, Asthma's, Obstructions, and Ruptures of the Pulmonary Vessels, Spitting of Blood, Consumptions, Empyema's, Pleurifies, Peripneumonia's*, and the like. That a considerable Degree of Density in the Air is requisite to the well being of an Animal, is sufficiently evident from numerous Experiments of Mr. Boyle, on different Animals inclos'd with rarified Air in the Receiver (*y*), as also from those inclos'd in *Vacuo*, the Vesicles of whose Lungs upon Dissection are found close shut, and perfectly exhausted of Air, and not like those of other Animals to swim in Water, but immediately sink to the Bottom. This is farther evident from what the ingenious Dr. Keil has demonstrated of

(*x*) Bellinus *ex iis quæ ad Respirat.* Sect. 22, 23.

(*y*) Pneumatical Experiments, or Philosophical Transactions, No. 63. Pag. 2036.

the different Pressure of the Air, in Proportion to its Density, on the Substance of the Lungs (*z*); which compar'd with Mr. *Halley's* Computation of the falling of the *Mercury* at different heights, publish'd in the *Philosophical Transactions* (*a*), it will follow, That the Difference of the Air's Pressure on the Lungs at the Top of Mount *Teneriff*, supposing it two Miles and a half high, as by the best Accounts it is said to be (*b*), from that on the plain Surface of the Earth, will be equal to Forty Pounds; Now the whole Pressure being only equal to an Hundred Pounds (*c*), it will follow that Air so extreamly thin and rare must be proportionally unfit for Respiration. This will still farther appear, if we consider that *Weak, Consumptive, and Asthmatic* People find no small Difficulty of Breathing upon the Common Alterations of the Baro-

(*z*) *Animal Secretion*, pag. 22, & 27.

(*a*) No. 184. pag. 104. (*b*) Account of Mount *Teneriff* in Mr. *Boyle's* Hist. of the Air. (*c*) *Animal Secretion*, loc. citat.

meter, whose greatest Variation amounts to no more than three Inches, and the Variation of the Air's Pressure thence arising, to only ten Pounds. Nor is this Inaptitude of the Air of the highest Hills for Respiration found less demonstrable from Fact, and the Testimony of those, who have assay'd to climb to the Tops of them. *Josephus Acosta* tells us, That going up a high Mountain in *Peru*, both he and his Companion were taken with Vomitings of Blood, which lasted till they came to an Air more dense, and convenient for Respiration. *Mr. Boyle* also tells us of several, who in climbing to the Tops of Mountains were taken with Difficulties of *Breathing, Vomitings, Sickness*, and the like (d), so as not to be able to reach the Top. I shall not need to mention the severe Cold, and almost constant Snowes which are found on the Tops of the highest Hills, there being none I believe who wou'd choose a Si-

(d) *Loc. Citat.* and Account of Mount *Teneriff*.

tuation on the **Tops** of the *Alps*, or *Pyrenean* Mountains: What has been said on this Head, being I believe sufficient to convince the Reader, That an Excess in this kind may be equally prejudicial with the lowest Situations; and that it is not the great, but moderate Height above the neighbouring Country, that advances the Salubrity and Pleasure of the Situation.

Varro indeed and *Porta* both commend a high and lofty Situation (e), but the Reasons there given being only that the Air may be agitated, and kept from Stagnation by Winds and gentle Breezes, their Design is sufficiently answer'd by a moderate Ascent; whereby the severe Cold, and other Inconveniences of a too high, as well as Humidity of a low Situation, are best prevented. But in this the Temperature of the Climate ought principally to be consider'd, a high and lofty Situation, in very hot and sultry

(e) *M. T. Varron. de Rustica, lib. 1. cap. 2. Joan. Bapt. Porta. Villæ, lib. 1. cap. 22.*

Countries, if kept within Tolerable Bounds, being by Reason of its Coolness preferable to the other, which in colder Climates will by no means hold true, thro' the Severity of the Weather. It is I think needless to enumerate the Effects of a too cold Situation on our Bodies, as those which are very high must be, though not to that Degree as immediately to affect our Respiration; The Habit of Body, Disposition of Mind, and Diseases consequent thereon, exactly agreeing with theirs of a *Northern* Situation, which I have already describ'd.

What has been said of the Rarity *Air of* and Thinness of the Air on the Tops of *Vallies.* Hills, will be sufficient Proof of its Density in the lowest Vallies, agreeable to that of Seneca, *Omnis Aer quo propior est Terris hoc crassior, quemadmodum in Aqua & in omni Humore Fax ima est; ita in Aere spississima quæque desidunt (f),* i.e. Air the nearer it is to the Earth, is

(f) Nat. Quest. lib. iv. cap. 10.

by so much the more gross and heavy, as the *Fæces* in Water, or any other Liquor, sink to the Bottom; With this only Difference, That there are no Vallies so much below the general Surface of the Earth, as the Hills are above it, and consequently the Density of the Air in the lowest Vallies, must be much less above the healthful Standard, than its Rarity on the Tops of the highest Hills. Whence it is that the Air in the lowest Vallies, does not immediately equally affect us, with that on the Tops of the highest Hills, though an Air consider'd only as too dense and heavy, is not without its Inconveniences; which are its too great Pressure upon, and Expansion of the Pulmonary Vesicles, whereby their delicate Structure is endanger'd, and the Compression of the sanguineous Vessels perhaps so far increas'd, as not a little to obstruct the Passage of the Blood through them. This will be more sensibly felt by *Asthmatic* and *Consumptive* People, the Fibres of whose Lungs being

ing weak and tender, will be less able to resist this increas'd Pressure, and by being expanded beyond their Natural Pitch, be gradually worn thinner, and thence a Breach of the Vessels, and Consumption ensue. Nor is this the only Inconvenience attending an Air too dense and heavy; For the Pressure on the Surface of the Body, from the Weight of the incumbent Fluid being increas'd, the Resistance to the circulating Fluids toward the Surface of the Body will be augmented, and a greater Quantity flow to those Parts where there is less Resistance. Now the Pressure of the Air on the Brain being taken off by the *Cranium*, a greater Quantity must be forc'd into that Part, and Obstructions and Ruptures of the Vessels frequently ensue in its Capillary Arteries, from their exceeding fine and delicate Structure; Whence proceed *Head-achs*, *Vertigo's*, *Lethargies*, *Palsies*, *Apoplexies*, and the like. Which Symptoms will more especially happen to such, as are

E

of

of a gross, fat, and corpulent Habit of Body, and indulge themselves in Ease and Luxury; the Vessels being hereby render'd more Turgid, the Blood more Viscous, and apt to stagnate in the Capillary Vessels. Now if to what has been said of the greater Density and Weight of the Air, be added its greater Humidity, caused by Fogs and Damps, arising from the great Quantity of stagnating Waters, which must necessarily be found in Vallies and low Situations, thro' the want of a sufficient Descent, it must inevitably happen, That the Tone of the Fibres will be relax'd, and the regular Expulsion of the perspirable Matter obstructed: Whence, besides the Diseases already mention'd, they will be subject to a long Train of Maladies, attending a moist and watry Situation, as are *Lingring and Intermittting Fevers, Asthma's, Loss of Appetite, Scorbritical Ulcerations, Cachexies, Dropsies, Jaundies*, and the like.

A Situation upon a *Flat* will be ex-^{Of Situa-}treamey different in its Qualities, on Ac-^{tions in a}count of its being placed in a high or ^{flat Coun-}low Part of the Country, as it is per-^{try.}vious to different Winds, and the like; the Advantages and Inconveniences of which being already recited, I shall not trouble the Reader with them. But this Inconvenience will certainly attend them, *viz.* A longer Continuance, and greater Quantity of stagnating Waters, through the want of a sufficient Descent, whereby the Situation will be more Humid, than if plac'd upon a moderate Ascent, and consequently be more or less subject to the Diseases attending a moist Disposition of the Air, whether warm or cold, the Particulars of which being already enumerated, I shall refer the Reader to them.

What has been said of Situations in Valleys, may for the most part be ap-^{Of a hol-}plied to a Hollow Country, which must ^{low or con-}necessarily be Unhealthful on Account ^{cave Coun-}^{try.}

of the Stagnation of the Waters, the Closeness and Inactivity of the Air, from its being pent up, and not agitated by Winds, and the pernicious Vapours and Exhalations floating in it; which not being dispers'd, must there putrifie, and become very Injurious to the Animal Oeconomy. How much the Use of fresh Air conduces to the Health and Well-being of an Animal, is evident from several of Mr. Boyle's Experiments on Animals shut up in Air, clog'd with Vapours and Exhalations (f), the *Diving-Bell*, the constant Infalubrity of *Camps*, and the like; As also from Animals inclos'd in Artificial Air, which expire sooner than in *Vacuo* (g). On which Account they will be subject to *Putrid*, *Malignant*, and *Pestilential Fevers*, which in *hot Summers* will frequently attend them, as is evident from what has been said already. This appears also from *Livy's* Account of the Plague at *Rome*, during the Con-

(f) Pneumatical Experiments. (g) Account of Animals in Artificial Air.

fulship of *Valerius Potitus*, and *Manlius* (g), whose Situation is somewhat of this kind, and expos'd to the warm and moist Winds (h); and especially that of *Ancient Rome*, which stood much lower than the *Modern*; the present City being built upon the Ruins of the former, and computed to stand about Fourteen or Fifteen Foot higher than the *Ancient*, taking one Part with another (i). Nor do I think it at all dissonant to Reason, That Diseases of this kind shou'd in these Situations, which are constantly moist and foggy, and fill'd with various kinds of Vapours and Exhalations, happen chiefly in excessive dry, and hot Summers; since in *Africa* as *Joan. Leo* reports (k), whose Clime is always hot and scorching, Showers falling during the hottest Months, commonly induce the *Plague*, and *Pestilential Fevers*, which Degree of Moisture must in these Situ-

(g) *Tit. Livii Hist. Roman.* (h) *Baglivi Prax. Med. lib. 1. cap. 15.* (i) *Mr. Addison's Remarks on several Parts of Italy, p. 300.* (k) *Hist. Afric. lib. 1. cap. 1.*

ations necessarily be found in the hottest Summers, and consequently the Air of these Places, though situate in a much cooler Climate, come somewhat near to that made by the falling of Rains in *Africa*, during the Hottest Months. Whence 'tis no wonder, if the *Plague* or *Pestilential Fevers* ensue. Agreeable to this is my *Ld. Bacon's* Opinion of the Cause of the Plague in moist Airs, which he affirms frequently to happen in dry, and hot Years (*k*).

Of the Air
& Plague
of *Ægypt*.

Nor is it improbable that the Insalubrity of the Air of *Ægypt*, whose Situation is low, and expos'd to the Sun's most scorching Beams, may be hence in a good measure deriv'd. The Air being not only fill'd with putrified Vapours, arising from the Mud and other Filth brought down by the preceeding Flood, (which is in such abundance, that as *Purchas* informs us (*l*), the very Soil is

(*k*) Nat. Hist. Cent. IV. No. 383.

(*l*) *Purchas's Pilgrimage*, lib. 6. cap. 17.

made up of it, the Natural one of the Country, being only a dry unprofitable Sand,) but the Inhabitants depriv'd of those Breezes, which cool and abate the scorching Heat of the *Torrid Zone*, and forced to build Towers to a considerable Height, to the Tops of which they ascend for the Benefit of the Air.

But worse still than this is the Air of *Grand Cuiro*, by the Situation of the City, “which lies close under the Hill of the Castle, by which all Wind and Air is intercepted, which causes such a stifling Heat there, as ingenders many Diseases (*m*): And what still adds to the Misery of these People, is the Baseness and Unwholesomeness of the Waters they use for their constant Drink, there being very few Wells in the whole Country, and those only fit for the meanest Uses; so that the greatest Part of their Drink is taken, either out of the standing Pools, or stagnating Sluices

*Situation
and Air
of Grand
Cairo.*

(m) *Thevenot's Travels, Part I. pag. 128.*

about the City, the River being no less than half a League distant (*n*). To this Insalubrity of the Air, the Exhalations arising from the stagnating Waters, in the numerous Gutters and Sluices cut from the River, may not a little contribute; which seems the more probable, since upon the Rising of the River, by which these Sluices are cleans'd of their Filth, send up more wholesome Vapours, and give a fresh Motion to the stagnating Air, the Plague immediately ceases, insomuch that as *Purchas* and others inform us, If there die at *Cairo* 500 of the Plague the Day before, yet upon the Increase of the River it intirely ceases, and none die of it (*o*). That this is owing to the Alterations induc'd in the Air from its new Motion, and the *Effluvia* of the Water (whether they be *Nitrous* as *Mr. Boyle*, or of *Chrysocolla* as

(*n*) *Purchas's Pilgrimage, or Thevenot's Travels, loc. citat.* (*o*) *Purchas's Pilgrimage, lib. 6. cap. 7. Sandy's Travels, lib. 2. p. 97. Heylin's Cosmograph. Pag. 925.*

Dr. Plot imagines (*p*), or of whatsoever Species) is farther evident from that violent Itching of the Skin, which constantly accompanies the Rise of the River. That the *Plague* and *Pestilential Fevers* do frequently take their Rise from the Vapours exhaled from putrified and stagnating Waters, and other filthy Exhalations, as *Goals*, *Camps*, the putrified Parts of *Animals* and *Vegetables*, is sufficiently attested by the best Writers (*q*); but how these are brought about in the Animal Oeconomy, may be in a good measure drawn from what has been said already, especially if join'd with those who have more Particularly handled this Subject (*r*). What might farther

(*p*) Determ. Nat. of Effluv. cap. 4. Nat. Hist. of Staffordshire, cap. 2. pag. 42. (*q*) Diog. Laert. Lib. 8. Segm. 70. Aetii Tetrab. II. Serm. 1. c. 94. Stobaei de Sanitate, Serm. 99. Oros. lib. 5. cap. 11. Sennert. lib. 4. cap. 14. & lib. 2. Part II. cap. 2. Ld. Bacon's Nat. Hist. Cent. X. No. 914. Boyle of the Saltness of the Sea. Bartholin. Act. Med. Vol. 4. pag. 295. Plot's Nat. Hist. of Oxfordshire, cap. 2. pag. 10, 11. Ramazine de Morb. Artif. cap. 41, 42. (*r*) Bellini de Feb. Prop. 18. Mead on Poisons, Essay V.

be urg'd as an Argument that the Plague, so frequent in this Country, proceeds chiefly from these Causes, is the greater Salubrity of the Neighbouring Countries; *Joan. Leo* (s) and *Purchas* (t) both inform us, that in *Numidia* it is not known once in an Hundred Years, and not at all in the Land of *Negro*. But to return more particularly to our Purpose, besides the above named Diseases, the Inhabitants of a *Low, Hollow, or Concave Country*, will be subject to *Diarrhea's, Dysenteries, A Cachectic and Scorbutic Habit of Body, Loss of Appetite, Flatulent, Hypochondriac and Melancholic Disorders, Asthma's, Consumptions, Dropsies, Jaundies, Lethargies, Palsies*, and the like.

Of an open
Situation.

By an *Open Situation*, I mean one on all sides expos'd to the Fury, and Inconveniences of the Winds and Weather: That no Place can be esteem'd Healthful where the Air is pent up, and not sufficiently agitated by Winds to preserve it

(s) *Hist. Afric.* (t) *Purchas*, lib. 6. cap. 13.

free from Stagnation, is I think evident from what has been said already, yet in its Opposite a *Medium* is to be observ'd, the Pleasure as well as Salubrity of the Place, not depending on its being on all sides naked and expos'd to the Weather, but chiefly on the convenient Position of *Woods, Rocks, Hills*, or other Shelter plac'd about it. The Disadvantages of its being every way expos'd to the Inclemencies of the Seasons, whether in a hot or cold Climate, are so obvious from what hath been said of the Effects of warm or cold Air on our Bodies, that it is needless to insist upon them: Nor do I think many Directions necessary, after what has been said of the general Qualities of Winds, &c. This being laid down as a Rule, *viz.* That the more cold the Climate is, the greater Shelter will necessarily be required toward the cold Winds, and greater Opening toward the *Southern*, and warm ones, and *vice versa*.

The

Of Woody
Grounds.

The most convenient, as well as ornamental Shelter is that of *Wood*, which ought to be cut through with *Vistoes*, and made several ways pervious to the Winds, whereby the Vapours exhal'd from the Trees, which wou'd otherwise stagnate, and render the Air Unwholesome, will be dispers'd, and succeeded by a more dry, clear, and wholesome Air. That Places abounding with Wood are thus moist and unhealthful, is evident from the Unhealthfulness of the first Colonies in *America*, which Effects abated as their Woods were cut down, and made more pervious to the Winds. This is farther evident from Dr. *Woodward's* Experiments on Vegetation (u), by which it appears, That the Quantity of Water expended by some Plants, was to their Growth as above 700 to One, and that they wou'd, one Day with another, in a short Time, expend double their Original Weight of Water.

(u) *Philosophical Transact.* No. 253.



C H A P. IX.

THE different Kinds of Soils, ex-^{Different}
 clusive of such as contain some ^{Kinds of}
Metallic or Mineral Substances, though
 commonly divided into several Species,
 as *Common Mold, Sand, Clay, Gravel,*
Stone, Marshy, Boggy, and the like, may
 be in a great measure reduc'd, so far as
 relates to their healthful or noxious Qua-
 lities, which alone I shall consider in this
 Place, to their being of a *humid* or *dry-*
ing Nature : Of the first Kind may be
 reckon'd *Clay, Boggy* and *Marshy* Grounds ;
 of the Second, *Sandy, Gravelly,* and *Sto-*
ny ; The *Common Black Mold* being a ^{Of Com-}
 sort of *Medium* between them, and there-^{mon Mold}
 fore preferr'd by several of the Ancients,
 not only for the Profit accruing to the
 Owner, but its salutiferous Qualities, as
 being

being free from several Inconveniences attending the rest (u).

I am not ignorant how far short this Division comes of that vast Number of Earths reckon'd up by the Writers *De Arte Combinatoria*; who, as *Kircher* informs us (w), reckon up no fewer than *One Hundred and Seventy Nine Millions One Thousand and Sixty Nine* different sorts of Earths. But of all this immense Number scarce *Eight* or *Nine* are so much as serviceable to the Husbandman, and much less worthy to be enumerated in this Place, as being rarely, if ever found on the Surface, and I believe many of them scarce any where else, but in the Imaginations of the Authors themselves.

Clay
Ground.

The Effects of *Clay Ground* recorded by the Ancients, are its weakening the Tone of the *Stomach* and *Viscera*, palling the Appetite, relaxing the Fibres of the Body, and debilitating the whole Ani-

(u) *Hippoc. de Aerib. Aq. & Loc. Aetii Tetrab. I. Serm. iii. cap. 162. Ld. Verulam's Nat. Hist.*

(w) *Kircheri Mund. Subterraneum.*

mal Oeconomy (x): All which are brought about by its cold, viscous, and unactive Nature, not only retaining the Moisture it receives by Rains, Dews, or otherwise a longer Time, but yeilding faint and unpleasant Vapours. And what contributes no small Share to the producing those Effects, is the flat and low Position of most *Clay Grounds*, whereby the Waters are apt to stay long upon them, and produce all the Consequents of a humid Situation.

But much worse still than these, are the Effects consequent on *Marshy and Boggy Grounds*. ^{*Marshy and Boggy Grounds.*} from the vast Quantity of filthy Vapours and Exhalations produced by the disagreeable Mixture of Salts and Sulphures lodg'd in the corrupted Earth, stagnating Waters, and putrified Parts of Vegetable Substances: *Ramazin* and *Kircher* both inform us (y), That the Fumes arising from stagnating

(x) *Aetii & Stobæi*, loc. citat. (y) *Ramazini de Morb. Artificum*, cap. 4. *Kircheri Scrutin. Pestis*, Sa. 1. Sect. 1.

Waters, wherein *Hemp* was steeped, (which indeed are very ungrateful to the Senses), brought on Malignant and Pestilential Fevers. Nor do there want almost innumerable Instances of the like Effects produced from the *Effluvia* of these Grounds, several Instances of which being already given (z), I shall not multiply Citations. Another Inconvenience attending these Situations is, the vast Quantity of *Flies* and *Insects* generated in these Places, which not only corrupt and defile the Waters, and Product of the Earth, but are some of them as *Varro* informs us (a), of such exceeding Smalness, as to float invisibly in the Air, and be suck'd in at the very Nostrils, whence says he proceed great and obstinate Diseases. Whether this be really so or not, I shall not dispute, but the frequent Cutaneous Eruptions in these Places, many of which contain Worms of exceeding Smalness, render it not altogether impro-

(z) Cap. viii.
Rustica, lib. I. cap. 12.

(a) M. Terent. Varron. de Re
bale.

bable. However the numerous Eggs of these, and other Insects and Reptiles swarming in Boggy Grounds, must frequently be latent in their Foods and Drinks, which if not sufficiently broke by the Force of the Stomach, as in those whose Digestions are Weak they frequently will not, must thence pass farther into the Body, where meeting with a proper *Nidus*, various *Animalcules* will be generated, which getting into the small Capillary Vessels will there cause *Obstructions*, *Inflammations*, *Fevers*, and the like; As appears from the numerous Worms and Maggots found in some *Tumours* and *Ulcers*, Sixty of which were at one Dressing taken out of the Ankle of a Girl at York, and those as Dr. Lister informs us, of Three or Four Inches long (b). This is farther evident from the *Worm-Fevers* so frequently happen-

(b) *Philosoph. Transact.* No. 95. pag. 60, 64.
See also *Memoirs of M. de La Croix*, for the Month
July, Anno 1693. and *Philosoph. Transact.* No. 213.
Pag. 215. and 222.

ing to Children and young Persons, the Fibres of whose Stomachs are weak, and less able to break the Tunicks of these Eggs, than those of adult ones. To which may be added the *Long Worm* coming out of the Flesh in the *East Indies*, occasion'd by the Water between *Gomroon* and *Schiraz*, especially about *Laur*, and that sometimes to the Length of Six or Seven Yards (c). I shall not need particularly to deduce the Inconveniences consequent on the Humidity of the Air, having already done it; To all which the Inhabitants of these Places must be extreamly subject, and the more especially if they be situate in a *Hollow Country*, whereby they are depriv'd of the Benefit of the Winds, which join'd with the fore-mentioned Inconveniences, renders a Situation of this kind, compleatly Unhealthful.

The best Method I know to prevent the Inconveniences attending these Situ-

(c) *Philosoph. Transact.* No. 225. pag. 417.

ations, is that recommended for an Humid Air, whether Warm or Cold according to the Climate, except that recited by *Varro*, which is to leave the Place, though to a considerable Disadvantage (d).

As the former Situations are discom-^{Sandy and Gravelly} mended by all Writers, so are those of ^{Grounds.} the *Sandy* and *Gravelly* kind approved of by most, for their salutiferous Qualities; The Soil being dry, and sending up no unhealthful Vapours, the Air clear, and the Country commonly sufficiently elevated, above the neighbouring Grounds. *Cato* indeed (e) and *Columella* (f) both commend a rich and fruitful Soil, which will by no means suit with this Situation, but they describe a meer Farm, and consult not so much the Health as Profit of the Inhabitants, as is evident from the Character of the former re-

(d) *Vendas quot Assibus possis, Et si nequeas relin-
quas. M. Ter. Varron. de Re Rustica, lib. 1. cap. 12.*

(e) *M. Por. Caton. de Re Rustica, lib. 1. cap. 2.*

(f) *Columellæ de Re Rustica, lib. 1. cap. 2.*

corded by *Plutarch* (g). For it will frequently happen, that such Soils, by Reason of the great Quantity of Tillage and forc'd Earth, will yeild a very unwholesome Air; an Instance of which we have in the Soil of *Ægypt*, which (as I said before) is made up of the Mud and other Filth brought down by the River, and and withal so exceeding Fertil, as to be reputed the Granary of the *Roman Empire*, and that judged by *Pliny* impossible to continue in its Grandeur, without a Supply of Corn from *Ægypt*. The greatest Inconvenience attending a *Sandy* or *Gravelly* Situation, is the too strong Reflection of the Rays of the Sun, especially in hot and sultry Countries; whereby the Sight and Eyes are weakned, and the Body dried and emaciated, as appears by their Effects in some scorching Parts of *Africa*. This is farther evident from what *Ramazini* has observ'd of Smiths, and such as are much conversant about

(g) *Plutarch's Life of Marcus Porcius Cato.*

the Fire, most of whom are subject to
blear and sore Eyes (*h*). How strongly
those Soils do reflect the Rays of Light,
our Eyes especially if tender, will easily
inform us; And Mr. Boyle tells us of a
Bed of Sand on the side of Mount *Teneriff*,
which was so heated by the Reflection
of the Sun-beams from the Rocks above,
that it burnt the Feet of a Dog as he
passed over it, though in every Part else
of the Mountain, themselves and Horses
were Aguish, and extreamly Cold, and
even their Wines and strong Liquors,
through the Severity of the Cold, seem'd
to have lost their Force (*i*).

What has been said of a *Gravelly* and *Sandy* Soil, may for the most part be ap-
plied to a *Rocky* and *Stony* Situation, *Stony
Ground*
with this Difference, That the greater
Closeness and Solidity of their Parts, ren-
der them more cold and chilling in Winter,
and the Reflection from them stronger
in the Summer Heats.

(*h*) *De Morb. Artif.* cap. 11.

(*i*) Account of Mount *Teneriff*.

*Situati-
ons near
Mines.*

How much the Fumes of *Metallic* and *Mineral* Bodies affect the Animal Oeconomy, is evident from their Effects on Animals shut up in Artificial Air, which expire sooner in that produced from most *Mineral* than *Vegetable* Substances; as also from the Effects of the most celebrated *Mephites*, viz. The *Grotto de Cane*, &c. To which may be added their Influence on those who are daily conversant with them, not only *Miners* who work, and are pent up the greatest part of their Lives in deep and close *Mines*, where the very Stagnation of the Air, Moisture of the Place, and Fumes of *Metallic* and *Mineral* Bodies necessarily prove highly injurious, but likewise on those who are busied in cleansing and dressing *Ores* and *Mineral Substances*, even in the open Air, who as *Ramazin* and others inform us, are *Cachectick*, *Asthmatick*, *Paralytick*, &c. (k). Which Effects very much vary,

(k) *Morb. Artif.* cap. 1. pag. 11, & 23. *Hippoc. Epidem.* iv. 13. *Wedelii. Patholog. Dogmat.* Sect. 2. cap. 9. *L. Tozzii Prax. Med.* Part II. *Cap. de Asthmate Helmontii Tract. de Asthmate.*

accord-

according to the Nature and Qualities of the particular *Métallic* or *Mineral* Bodies. Thus *Lead* is said to induce *Colicks* and *Palsies* (l); *Mercury*, *Tremors*, *Vertigoes*, *Palsies*, *Hecticks* (m); *Alum*, *Vitriol*, *Iron*, and others by their *Stypticity*, produce *Costiveness*, *Rigidity of the Fibres*, *Obstructions*, *Incubus*, *Asthmatick*, *Hypochondriack*, and *Melancholick Disorders* (n); *Arsenic*, *Marchasites*, and other pungent and acrid *Salts*, *Ulcers*, *Cutaneous Eruptions*, *Baldness*, *Botches*, *Inflammations*, *Cardialgia*, *Colicks*, *Epilepsies*, and the like (o); *Fumes of Coal*, *Sulphur* and *Bitumenous Bodies*, *Suffocations*, *Asthma's*, *Flatus*, *Hypochondriacus*, &c. (p). All which Effects will be more or less viru-

(l) *Ramazini de Morb. Artif. cap. 4, § 5.*
Wainwright's Non-naturals, pag. 82. Philosoph. Transact. No. 2. pag. 6.

(m) *Fallopia Tract. de Metal. § Fossit. Ramazini de Morb. cap. 1. Non-nat. loc. citat. Skenckii Obs. Med. Lib. vii. Obs. 196, 197, 198.*

(n) *Bagliivi Prax. Med. lib. 1. cap. 15. Non-nat. loc. citat.* (o) *Mead on Poisons, Essay iii. 116 &c. Philosoph. Transact. No. 2. p. 6.* (p) *Plinii Nat. Hist. lib. 31. cap. 3. Philosoph. Transact. No. 3. p. 41. No. 48. No. 117. p. 392. No. 136. p. 895.*

lent, as the Vapour arising from these *Mineral* Substances, is more or less stock'd with their Particles, and as they are situated in a high, low, open, or close Place, whereby the Fumes and Exhalations will be either dispers'd, and render'd ineffectual by Winds, and a constant Supply of fresh Air, or be there collected in great Quantities, and produce their most mischievous Effects.

Of Grotto's
Vulcano's,
&c.

Hence we may account for the Mischiefs produced by the Fumes and Exhalations of *Grotto's*, *Vulcano's*, &c. arising either from such Mixtures of the Salts and Sulphurs of *Metallic* and *Mineral* Bodies as destroy the Air's *Elasticity*, augment its Gravity, and render it unfit for Respiration, and the Animal Use ; of which kind the *Grotto de Cane* in *Italy* is, and the Lake *Avernus*, and others are said to be (q) : Or from the *Smoak*, *Asbes*, and the like, sent by them into the neighbouring Country, which filling the Air

(q) *Bernardi Connor. Lib. de Antris Lethiferis. Mead on Poisons, Essay V.*

with Dust, Fumes, and Exhalations, render it unfit for Respiration, and produce *Suffocations, Asthma's, Syncope's, &c.*

But before I leave this Subject, it may not be amiss to take Notice of the Difference of the Air of Cities and large Towns, from that of the Country adjacent; The former being always more stock'd with Heterogeneous *Effluvia* arising from the Smoak, Steams of common Shores, and Exhalations of Animal Bodies, and the like unwholesome Vapours, which clogging the Air's Spring, render it less fit for Respiration, and the Animal Use. Whence the Inhabitants of such Places will be more subject to the forementioned Diseases attending an Air of this kind, than those who live in the purer Air of the Country (r). And especially if some great and remarkable Trade or Manufacture be carried on in it, as are those of Cloath, Iron, &c. such

(r) *Baglivi Prax. Med. lib. 1. cap. 15. Sanctorii Med. Static. Sect. 2. Aph. 61. Ramazini de Morb. Artif. Wainwright's Non-nat. pag. 89.*

Places being not only more Populous; but the Air fill'd with a greater Quantity of Fumes and Exhalations, arising partly from the Substances themselves, and Ingredients used in manufacturing and preparing them; and partly from the large Fires, Furnaces, &c. necessary on such Occasions.

*Situations near
Lakes, &c.*

It will be needless to enumerate the Inconveniences attending a Situation immediately adjoining to large *Lakes, Rivers, &c.* it being sufficiently evident, That these Places must be more moist and foggy, than is consistent with a healthful Situation. But in these there will be no small Difference in their Effects, as they either entirely stagnate, or pass off in a slow or rapid Current; the first being by all exploded, and the last for many Reasons most eligible.



C H A P. X.

AS there is nothing enters the Body *of waters* in greater Quantity, or more frequently than Water, this being the Foundation of all our Drinks, whether Natural or Artificial, as well as principal Ingredient in various Kinds of Foods, and sole Vehicle of all our Nourishment, not to mention its Use in Cooking and Preparing them; So are the Alterations produced thereby in the Animal Oeconomy, of the utmost Consequence, an Error herein proving often the Cause of Fatal Mischiefs, and most Obstinate Diseases. What was said before of the Origine of different Qualities in the Air, may be equally applied to this Fluid, which is in it self simple and homogeneous, friendly to our Natures, and excellently adapted to relieve
innu-

Difference
of Waters
whence.

innumerable Necessities, of both the Animal and Vegetable Kingdom. For, as that by passing over various Climates, Tracts of Earth and Water, acquires new and even contrary Qualities, so does this no less, from the various kinds of *Salts, Sulphurs, Metallic, and Mineral* Particles it meets with in the Bowels of the Earth. Nor is it only alter'd by these Means, but also by its *Heat and Coldness, Motion and Stagnation, Congelation,* and the like.

It would be endless, as well as unnecessary, to enumerate all the different Qualities, arising from the various Mixtures of *Salts, Sulphurs, &c.* in the Veins of the Earth; I shall therefore account for some of the most notorious, which are applied to constant Use, exclusive of such, as are so highly impregnated, as to become *Medicinal*, these not at all coming under the Design of this Treatise.

Waters

Waters may be consider'd as they contain any *Metallic* or *Mineral* Substance, as *Gold, Silver, Iron, Copper, Tin, Lead, Mercury, Arsenic, Alum, Vitriol, Common Salt, Sulphur, Nitre, &c.* Secondly, from the Soil through which they pass, as *Sand, Gravel, Stone, Clay, Mud.* Thirdly, from their *Motion* or *Stagnation*, and *Impregnation* with Animal and Vegetable Substances. Fourthly, from their *Congelation, Warmth* or *Coldness*, and *Position*, with Respect to the Sun and Winds.

Of these, The Former are undoubtedly Hurtful to most Constitutions, on Account either of their greater Weight, and more difficult Passage by Urine and Perspiration; the Acrimony of their Particles, by which the Vessels are torn and corroded in their Passage; or from their strong contracting and drying Quality, by which the Solids are hardened, and become rigid and inflexible, the Fluids render'd acrid and pungent, and apt to stop in the Capillary Vessels. For, these

*Mineral
Waters.*

these Particles being too hard and solid to be broke by the Force of the Vessels, and circulating Liquors, and withal angular, sharp, and pungent; will not only in their Passage, through the small and nervous Vessels, wound and tear their Coats, but frequently by the Ruggedness and Inequality of their Surfaces, obstruct the Canals, and render them Impassable, and especially when the Vessels are become hard and rigid, by a long use of these contracting Waters; whereby the Canals are straitned, and the Fibres through their greater Stiffness, less apt to yield and give way to the obstructing Matter. Whence proceed Obstructions, Inflammations, Asthma's, Pleurisies, Peripneumonia's, Costiveness, Dry Gripes, Strangury, Stone, Scorbutic and Arthritic Pains, and the like (r). Which will mostly happen to such, as are of a hot, tense, and cholerick Constitution,

(r) Hippoc. de Aerib. & Aq. Oribas. Collect. lib. 5. Aetii Tetrab. l. Serm. 3. cap. 165. Avicen. Tract. 5. Lib. de removendis a Sanitate nocumentis.

whose Fibres are already too stiff and rigid: On the contrary they may be of no small Service to such, as are of a lax and phlegmatic Habit of Body; the Vibrations of the Fibres which are naturally too weak and slow, being render'd more dense and strong, and the gross and viscid Fluids attenuated by their active Salts.

Of the second Species, those passing ^{Waters} through *Sand* or *Gravel*, are esteem'd ^{passing} ^{through a} ^{sandy Soil} Preferable to the rest, the heterogeneous Particles being stopt in their Passage, by the constant Percolation; On which Accounts, these Waters are commonly light, clear, smooth, and insipid (s), and consequently more generally Useful to the Animal Oeconomy than the rest, as capable of receiving the most advantageous Qualities.

Those passing through *Stone*, though ^{Thro' stone} commonly clear and bright, are generally less smooth and free from hetero-

(s) *Vitruv.* cap. 1. lib. 8. Architect. *Plinii Hist. Nat.* lib. 31. cap. 3.

geneous Salts, than the last mention'd, and sometimes stock'd to that Degree, as on this Account to render them Unwholesome, through their strong Contracting and drying Quality (*t*). To which may be added the *Petrifying* Quality of many of these Waters, whereby not only the *Primæ Viæ*, and Passage of the *Chyle* will be obstructed, (a remarkable Instance of which we have given by *Nicholas de Blegny*, in one who was dissected at *Paris*, where the *Pilorus*, a great Part of the *Duodenum*, and *Stomach* it self were incrustated with a stony Matter, to the Thickness of a Finger's Breadth (*u*),) but the small Vessels will be obstructed, and Stones formed in various Parts of the Body, and especially in those design'd for carrying of the more ferous and aqueous Parts of the Blood, as are the urinary Passages. For notwith-

(*t*) *Hippoc. de Aerib. & Aq. Aet. Tetr. III. Serm. 3. cap. 9. & Tetr. I. Ser. 3. cap. 165. Stobæi loc. citat.*

(*u*) *Zodiac. Med. Gallic. Anno 1679. Mens. Feb. Obs. 3.*

standing these Particles, when carried along with the *Chyle*, may be small enough to circulate with the Blood, without any manifest Disturbance from them; yet, they will when increas'd in Number, partly by their own strong attractive Force, and partly by their Union with some viscous Fluid, form larger Cohesions, obstruct the Passage of the circulating Fluids, and produce such Concretions, as are by no means consistent with an healthful State. To this agrees the Observation of Dr. *Lister*, who acquaints us that the Inhabitants of *Paris*, are more frequently afflicted with the Stone than most other Places, occasion'd by the Hardness, and great Quantity of stony Particles in the Water of the River *Seine*, which is so stock'd with them, as to incrustate, and often stop up the Pipes, through which it is convey'd into the City (w). Of these Waters, those passing through the *Red-sandy* and *Gravelly*

(w) Voyage to *Paris*.

Stone, are esteem'd Preferable to the rest, as containing fewer Salts, and coming nearest to the former.

Thro' Clay As to *Clay Grounds*, there are I believe few or no Springs, which pass through a solid Bed of Clay, the Waters found in such Places, commonly passing thro' a *Stratum* of Sand or Gravel lodg'd in the Clay, on which Account it is, that the Ancients observ'd the Springs found in *Clay Grounds* to be commonly very good, but rare and difficult to be met with (x).

Thro' Mud Those passing through *Mud* are condemn'd by all, being constantly largely stock'd with heterogeneous Salts and Sulphurs extracted in their Passage, and consequently of a hot, acrid, and pungent Nature, apt to putrifie and stink in a short time, and highly injurious to the Animal Oeconomy (y).

(x) *Plinii Hist. Nat. lib. 31. cap. 3.* (y) *Galen. Com. in Part. X. Sect. Lib. 6. Epidem. Hippoc. Plinii loc. citat. Stobæi loc. citat. Aetii Tetrab. I. Serm. 3. cap. 165. Actuarius de Sp. Anim. Nutr. cap. 8.*

The Ancients, among the admirable ^{Of Run-}
 Rules deliver'd by them for the Choice ^{ning Wa-}
 of Water, frequently inculcate its Simi- ^{ters.}
 litude to Air; partly on Account of the
 greater Lightness and Purity of the fi-
 nest Waters, and partly on Account of
 the Changes wrought in them both by
 their Stagnation, and Mixture with hete-
 rogeneous Particles. And indeed, as
 there is nothing contributes more to ren-
 der the Air pure and wholesome, than
 its Agitation by Winds and gentle Bree-
 zes; so neither does any thing preserve
 Water from corrupting, and acquiring
 the most mischievous Qualities, so well,
 as a brisk and rapid Motion, which is
 so essentially necessary to this End, as to
 be constantly enumerated amongst the
 distinguishing Characters of a wholesome
 Water (z). The heterogeneous Parti-

(z) Hippoc. de Aerib. & Aq. Cardani Comment.
 in hunc Lib. Plinii Nat. Hist. lib. 31. cap. 3. Aetii
 Tetrab. loc. citat. Actuarii loc. citat. Vitruv. lib. 8.
 cap. 5. Architect. Avicenas Lib. 1. Fen. 2. Doct. 2.
 Cap. 16.

cles, being either stop'd by its Percolation dropt in its Passage, or at least depriv'd of that Fermentation and Putrifaction, which wou'd otherwise necessarily ensue, and render them less fit for the Animal Use.

Of Stagnating Waters.

The Mischiefs arising from the constant Use of *Stagnating* and *Putrified* Waters, may be justly esteem'd some of the most deplorable and obstinate that afflict Mankind. For not only the Texture of the Sanguineous *Globules* will be too much broken and divided by the acrid Salts and Sulphurs lodg'd in these Waters, but its more Gross and Terrestrial Parts,, (which will be much augmented by their Use) will be incrassated, united, and retain'd in the Body, and thence apt to stagnate in the Capillary Vessels. The *Serum* also being render'd Acrid and Corrosive, must necessarily prick and tear the Coats of the Vessels, and especially when its Passage is intercepted by the more gross and tenacious Fluids,

Fluids, and its Salts sharpened by the Heat of the Body. Whence proceed *Itchings, Cutaneous Eruptions, A Scorbutil Disposition, Phagedenic Ulcers, Heat, Thirst, Arthritic and Rheumatic Pains, Obstructions and Hardness of the Viscera, Jaundies, Scirrous and Cancerous Tumours, Diarrhea's, Dysenteries, Lingring and Malignant Fevers, Quartans, Hecticks, Consumptions, a Thin and Meagre Habit of Body, Flatus, Hypochondriacus, Melancholy, Madness, and the like (a).* And the Viscosity of the Fluids constantly increasing, and Quantity of Animal Spirits decreasing, Perspiration will be intercepted, the Vessels loaded with a sharp and corrosive *Serum (b)*, and a *Dropsie* ensue, the almost constant Harbinger of Death in these Constitutions, as the great *Hippocrates* has long since observ'd (c).

(a) Hippoc. *Lib. de Aerib. & Aq.* Cardani *Comment. in hunc Lib.* Aetii, Actuarii & Plinii *loc citat.* Sanctorii *Med. Static. Sect. 2. Aph. 6.* Mead on *Poisons, Essay V.* F. H. *Scelera Aquarum.*

(b) Sanctorii, *loc. citat.* (c) *Loc. Citat.*

All which will be farther promoted, by the unequal Disposition of these Waters, as to their Heat and Coldness in the different Seasons of the Year, being in Winter commonly frozen, and much colder than quick and running Springs; and in Summer warm, thick, stinking, and putrid.

To these may be added a long Train of Maladies, springing from the numerous Eggs and Spawn of filthy Insects and Reptiles lodg'd, and hatch'd in these Waters; which not only increase the *Fætor* and Corruption of them, but by being carried into the Body, by their Means prove often of most fatal Consequence. For not to mention the different Kinds of Worms bred in the Bowels, Reins, Heart, Brain, and other Parts of the Bodies of Men, and other Animals, occasioned frequently by the Use of these Waters, Instances of which are almost innumerable; nay, sometimes crawling alive out of the very
Veins

Veins upon Bleeding (*d*); even Snakes, Toads, Lizzards, and others of the most filthy Animals, have been frequently bred in the Body by their Means.

Gesner tells us, That in and about *Zisca* a Town in *Hungary*, near Three Thousand People died *Anno Dom. 1551.* of violent Pains in the Stomach and Bowels, occasioned by *Serpents* and *Lizzards* generated within them, which wou'd sometimes as these miserable People lay down in the Sun, appear at their Mouths (*e*). *Bartholine* assures us, That a Woman who died in the Hospital at *Altenburg*, voided by Stool and Vomit, for Twenty Years together, many Toads and Lizzards, and much filthy Matter like their Spawn; The Truth of which Relation is also confirm'd by *Wolgnad*, cited by *Bonetus* (*f*), and in the German

(*d*) *Miscellan. Gallic. Edit. per N. de Blegny Anno 1679. Mense Maii Obs. 7. Mense Augult. Obs. 7. Mense Decemb. Obs. 7.* (*e*) *Gesneri Hist. Animal. Lib. 2. Cap. de Lacertis.* (*f*) *Boneti Sepulchrea. Anotom. Lib. 3. Sect. 17.*

Transactions (g). Another Relation not much unlike this, may be found in these *Transactions* of a Butcher's Boy, who in the Spring drank greedily of some stand-Waters, which some Time after caused great Pains in his Stomach, accompanied with the most violent Symptoms, which ceased not 'til he had vomited up Three live Toads (h). To which may be added that Relation of Dr. *Sorbait*, which he affirms to have seen himself, of one who had a Toad came out at an Abscess, occasion'd by the drinking of foul Water (i). *Nicholas de Blegny* likewise tells us of a Monk who, *Anno 1677*. with incredible Torment voided a Serpent by Urine of above a Span long (k). But we need not ramble thus far from Home for Instances of this kind, several of which may be found in our own Philosophical *Transactions* (l).

(g) *Ephemer. German.* Tom. 1. Obs. 103.

(h) *Ibid.* Tom. 2. (i) *Ephem. German.* Tom. 2. Obs. 103.

(k) *Zodiac. Med. Gallic. Anno 1679. Mense Apr. Obs 2.* (l) *Philosoph. Transact.* No. 117. pag. 393, & 394. No. 6. p. 164.

Nor are the Effects occasion'd by the putrified Parts of Vegetable Substances, floating in these Waters, of less pernicious Consequence; A remarkable Instance of which is that given by *Skenkius*, of some who died by drinking Water wherein *Hemp* was steep'd (*m*), and cites *Avensaar*, who was in some Danger by drinking the Waters of a Well wherein some *Lizzards* were putrified (*n*). But it wou'd be endless, as well as tiresome to the Reader, to enumerate all the fatal Effects of these Waters, so I shall not trouble him with more Citations; what has been said, being, I believe, sufficient to convince any of their pernicious and dangerous Qualities.

Nor are the Waters of the greatest part of our *Wells*, in use for common Drink, altogether Inculpable on Account of their Stagnation, Closeness, and Mixture with *Metallic*, and *Mineral* Ingred-

Of Wells
Water.

(*m*) *Skenkii Obs. Med. Lib. 8. Obs. 8.*

(*n*) *Ibid. Obs. 8.*

dients, tho' not to that Degree as the stinking and putrid Pools above mentioned. Whence they will gradually dispose the Body to the fore-mention'd Diseases, and sooner or later make us sensible of their pernicious Effects (o).

Rain Water.

Rain Water tho' in it self lighter than others, and on that Account eligible, is yet from the Heterogeneity of its Parts, owing to the Exhalations of Plants and Animals, the Steams of common *Shores, Boggs, Fenns*, and the like, apt to putrifie in the shortest Time of any other, and consequently less wholesome than that of quick and living Springs; and especially if long kept, the saline and sulphureous Parts being attenuated, and render'd acrid and pungent; so that such who are oblig'd to use it as their Drink, or otherwise in Foods, ought principally to take Care it be kept as short a Time as possible, or else stay till its Fermen-

(o) J. H. *Scelera Aquarum.*
Essay V.

Mead on Poisons,
tation

tation be over, and it acquire its pristine Purity.

The Ancients whose chief Drink was Water, lay great Stress on its Warmth or Coldness, and Position with Respect to the Sun and Winds; those respecting the *East* being, *cæteris paribus*, most esteem'd, as having the Benefit of the Morning Sun to correct their Coldness and Crudity, and being shelter'd from the Scorching Heat of the rest of the Day; whereas those toward the *South* in Summer were esteem'd too warm, and apt to putrifie from the greater Heat, and those respecting the *North* and *North-West*, through their excessive Coldness, especially in Winter, thought of no less ill Consequence, from their too suddenly constringing the Fibres, straitning the Canals, condensing the Fluids, chilling the Stomach, and hindring Concoction. Whence proceed *Obstructions* in the *Viscera*, *Colicks*, *Cachexies*, *Hardness* of the *Belly*, *Stone*, *Strangury*, *Flatus Hypochondriacus*, *Coughs*, *Asthma's*, *Angina's*, *Obstructions*.

structions and Inflammations of the Breast and Lungs, and the like (p).

*Waters
produced
by the mel-
ting of
Snow, Ice,
&c.*

The Waters produced by the melting of *Snow, Hail, Ice*, and the like, are reputed of no less ill Consequence; the lightest and best Part of the Water being evaporated during the Diffolution, and the Gross, Saline, and Terrestrial only remaining. Whence it is, that they who are forced to make use of these as their constant Drink, are observ'd to be much troubled with the *Stone, Gravel, Strangury, Arthritic Pains, Colicks, Dysenteries, Angina's*, and such like (q). To which may be added the chilling Coldness of these Waters, which frequent Experience may convince us to be attended with the most pernicious Consequences (r).

(p) *Hippoc. de Humidor. Usu, de Aerib. & Aq. Epidem. VI. Sect. 3. Aetii Tetrab. III. Serm. 3. cap. 9. Actuar. de Sp. Anim. Nutr. cap. 8. Theoph. Bonet. Anatom. Pract. Lib. 2. Sect. 1. Obs. 73.*

(q) *Vide Authores & loc. jam citat. Mar. Donat. lib. 3. cap. 6. Hist. Med. Admirab. Mead on Poisons, Essay V. (r) Hippoc. de Aerib. & Aq. Aph. Sect. 5. Aph. 24. Skenkii, lib. 7. Obs. 2. Fab. Hildan. Obs. Chirurg. Cent. 4. Obs. 43. Boneti Sepulchret. Anatom. Lib. 2. Sect. 1. Obs. 73.*

Whence

Whence probably it may be, as well as from the Cause above-mentioned, that the Water produced by the melting of Snow on the *Alps*, are so apt to obstruct and swell the Glands of the Throat, so that as Dr. *Mead* observes, very few of them are exempted from this Inconvenience (s).

From what has been said it will follow, That the best Water is such as is ^{Character of the best Water.} lest impregnated with heterogeneous Particles, and flows from quick and constant Springs, and those rising out of a *Gravelly, Sandy, or Earthy* Bottom; as also which is most *light, clear, inodorous*, and *insipid*; to which may be added its *easie Lathering* with Soap, *small Refracting* of the Rays of Light, *speedy Boiling* and *Cooling*, and its *supporting* the least Weight.

(s) *Loc. Citat.*

CHAP.



C H A P. XI.

Of Diet.

Of Bread
& Farina-
ceous Pre-
parations.

THE Substances taken as *Diet*, may be reduced to such as belong to either the *Vegetable* or *Animal* Kingdom; Of the former, *Bread* is the most nourishing, and especially that of *Wheat* when thoroughly clear'd of the Bran; which ought to be light and well fermented, whereby its viscous Parts are broken and divided, require less Force to reduce them into a Chylous Liquor, and consequently are much easier digested by the Stomach, than those of a more gross and viscous Texture. For the Force of Digestion consisting, in a great measure, in the Attrition of our Food into minute Parts, by the Force of the Stomach and Muscles of the *Abdomen*, as Dr. *Pitcairn* has demonstrated (t),

(t) *Dissertatio de motu quo cibi in Ventriculo rediguntur ad formam sanguini reficiendo idoneam.*

which

which is in some degree done by Fermentation, that being only a breaking and dividing of its constituent Parts by their intestine Motion, *Bread* thus prepar'd, will necessarily require less Force to reduce it to a due Fluxility. For the same Reason it is, that it ought to be well baked, and not eaten too new, as the present Mode too much requires.

The greatest Inconvenience attending the Use of the finest *Wheat-Bread*, is its being too apt to render the Body Costive in some Constitutions, which may be prevented by a small Portion of *Rie* or *Bran* mix'd with it.

The other Grains in most use amongst us are *Rie*, *Barley*, and *Oats*, all which with due Preparation and Fermentation may be reduc'd to good Food. And indeed 'tis the compleat Fermentation, as much as the Texture of the Grain itself, which renders these Substances more or less digestible by the Stomach, as is evident in *Wheaten-Bread*, which few Stomachs are able to digest without a pre-

previous Fermentation. And 'tis for this Reason, as well as their viscous Texture, that the Bread of *Beans*, *Pease*, and the like gross and glutinous Substances, which is seldom fermented, being in use only amongst the meanest People, is windy and hard to be digested, and apt to offend the Head and Stomach of such as are not accusom'd to it, or use not so much Exercise as is sufficient to attenuate its viscous Cohesions. Which Inconvenience, tho' more appropriated to these than any other Grain from their greater Viscosity, is yet a constant Attendant on the rest, and indeed all Farinaceous Substances, where a due Fermentation is wanting; and might I doubt not in these, as well as others, be much mitigated, if not intirely taken away, by a more compleat Fermentation, in Proportion to their greater Viscosity, if they who use them wou'd be at the Charge or Trouble of it. And indeed 'tis from this Source chiefly, that the Mischiefs attending the Use of all crude and farinaceous

naceous

naceous Substances take their Rise; For these viscous and unactive Particles, uniting with the *Mucus* of the Stomach, form a tough and glutinous Mass, hardly digestible by the strongest Stomach. This viscous Substance will necessarily require a greater Force in the *Organs* destin'd to *Digestion*, the *Bile*, and *Succus Pancreaticus* to reduce it to that Fluxility, which is requisite to a healthful and natural Chyle, and consequently many of its Particles pass farther into the Body, not so well attenuated and dissolv'd, as in a healthful State; which cohering in those Places where the Motion of the Blood is most languid, will gradually inviscate the whole Mass, and especially in those Parts where the Motion is naturally slower than the rest (*u*), as in those design'd for the Separation of the *Bile*. For this Liquor being *Saponaceous*, or ^{Of the Bile} consisting of a Mixture of saline and oily Particles, as appears by its Effects in the

(u) Keil's Animal Secretion.

Animal Oeconomy, and its taking out Spots, Stains, Grease, and the like, equally with any other *Soap*, it was necessary, not meerly because it is of a thicker Consistence than most other Juices, as Authors generally imagine, which is too often its Fault, and at best only the Consequence of its Texture as a saponaceous Body, but chiefly for the better Union of its saline and oily Parts, that it shou'd be carried by a greater *Amalgam*, and slower Motion than the rest; and also that by being detain'd longer in the Body, its saline and oily Particles might be attenuated, and render'd more active and pungent by the Heat of the Body; whence its Faculty of dissolving the Viscosities, and blunting the Acids of the Chyle are much increas'd, and render'd of the highest Service imaginable to the Animal Oeconomy. Now the Blood being gradually stock'd with these viscous Particles, and their Union much promoted by its languid Motion in these Parts, this useful Liquor will
be

be gradually clog'd with a viscous slimy Matter, and in a short Time become unfit for these Noble Purposes, increase the foremention'd Disorders, and a viscous heavy Phlegm obstruct and clog not only the *Primæ Viæ*, but whole Habit of Body; The Consequences of which are *Loss of Appetite, Fulness, Belchings, Nausea's, Vomitings, Costiveness, Torpor and Inactivity, Paleness, Hardness and Swelling of the Belly, &c.* which, if not timely remedied, will produce *Cachexies, Dropsies, Jaundies, Lethargies, Palsies, Apoplexies*, and the like. In Children *Rickets, Ruptures, Hardness of the Belly, and scrophulous and strumous Swellings.* In Girls *Obstructions, Clorosis.* In Women *Obstructions of the Menses, Barrenness, frequent Abortion*, and the like (w). Which will chiefly happen to such as are of a lax and phlegmatick Constitution, and especially if they live a lazy, or sedentary

(w) Hippoc. *de Dieta.* Sanct. *Med. Static.* Sect. 3. Aph. 61: Boerhavi *Aph. de cognoscend. & curand. Morb.* 72. Wainwright's *Non-naturals*, cap 8.

Life. For the most heavy and viscous Food, as is the unfermented Bread of *Beans, Pease*, and the like, may well enough agree with such as are accustomed to hard Labour, whose Fibres are kept always tense, their Fluids sufficiently agitated, and Viscosities dissolved by constant Motion ; but will in the forementioned Circumstances, sooner or later, in Proportion to the Coldness and Laxity, or Heat and Tensity of the Constitution, produce their most mischievous Effects. 'Tis true indeed these, and other viscous farinaceous Substances may, when moderately used, be of no small Service to those, whose Stomachs will bear them, and Blood abounds with acrid, volatil, and alkalious Salts, whereby its Texture is too much dissolv'd, and *Fluor* so great as to run off by large *Hemorrhages*, preternatural *Perspiration*, and the like ; These Things not only affording by Distillation an acid Spirit, apt to blunt the Force of the fiery alkaline Salts, but abating the too great Velocity of the Blood,

Blood, and arresting, and retaining the too volatil Particles by their viscous Cohesions.

What has been said of Bread and its Preparations, may be equally applied to any other farinaceous Substances; whose Parts the more they are broken and attenuated by Fermentation or otherwise, the more easily digestible they are by the Stomach, and *vice versa*.

Nor is this less Applicable to such *Mealy Roots* *Fruits, &c.* *Roots* and *Fruits* as are of a mealy and viscous Texture, as are *Parsnips, Potatoes, Chesnuts, Filberts, Almonds, Rice,* and the like. Whose Effects are analogous to those abovemention'd, and consequently hurtful or salubrious in the same Circumstances.

The greatest Part of our other Food *of subacid* taken from amongst the Vegetables may *& cooling* be reduc'd to such as are of a Cooling, *Fruits & Vegetables* or Heating Nature: Of the first kind are all subacid and watry *Fruits, Roots, Sallads,* and the like; As are most sorts of *Apples, Pears, Peaches, Cherries, Oranges, Citrons,*

Citrons, Cucumbers, Melons, Turnips, Lettice, Spinage, Sorrel, and many others so well known, as not to need a Description in this place; All which, partly by their viscous Texture, and partly by the acid and watry Particles wherewith they abound, are excellently adapted to blunt and carry off the acrid, alkalious, and fiery Salts and Sulphurs lodg'd in the Blood, and other Juices of those of a Hot, Tense, and Cholerick Constitution. Whose Stomachs, if not capable to digest them Raw and unprepared, which where the Circumstances will allow, is I think Preferable to any Cookery, may make use of such Preparations, by boiling them singly, or compounding them with other Food, as may make them serviceable to most Constitutions of this kind, as well as in most Diseases where these acrid, and alkalious Salts and Sulphurs abound in the Blood.

On the contrary, they are highly prejudicial to all such, as are of a lax and phlegmatic Constitution, whose *Bile* is
invis-

inviscated, weak, or deficient, and unable to reduce them to agreeable Nourishment, which so long as they continue in this Form, they are altogether incapable of supplying; no Acid being found beyond the *Prima Via*, in a Natural and Healthful State, as is plain from numerous Experiments (x) So that not being sufficiently blunted and alter'd by the Force of the *Bile*, they will not only during their Stay in the *Prima Via*, twitch and irritate the Membranes of the Intestines, and cause *Gripes*, *Colicks*, and *Flatulent Disorders*; but also when carried farther into the Body, coagulate the Animal Juices, retard the Circulation, diminish the Fluid Secretions, obstruct Perspiration, and cause a *Weak Pulse*, *Pale* and *Languid Complexions*, *Obstructions*, *Hysterick* and *Hypochondriack Disorders*, *Convulsions*, *Jaundies*, *Dropsies*, and the like (y).

(x) *Othonis Tackonii Hippoc. Chymic.* Boyle's History of Human Blood. (y) *Hippoc. loc. citat.* Boerhavius Aph. No. 63, 64. Purcell of the Cholick, Page 34.

Of Hot
Aromatic
Vegetables

Of the latter sort are all those *Herbs, Roots, Seeds, &c.* which in the Mouth are hot and biting, of which kind are *Cresses, Mustard, Scurvygrafs, Onions, Garlick, Ginger, Pepper, Bitters* and *Aromatics* of all sorts, and the like. All which contain a hot, acrid, and aromatick Oil, and pungent Salt; which partly by stimulating the Fibres of the Stomach, and partly by attenuating and dividing the Viscosities lodg'd in it by their active Particles, increase its Force, and promote the Digestion of the Aliments contain'd in it. And being thence carried farther into the Body, they do for the same Reason attenuate the Fluids, stimulate the Solids to more frequent Vibrations, increase the Velocity of the Circulating Liquors, augment the Force and Acrimony of the *Bile*, promote the Secretion of the more thin and active Fluids, and cause a more speedy Expulsion of the Perspirable Matter. On which Accounts they are of Use to those, whose Fibres are too lax and torpid, Circulation of the
Fluids

Fluids too slow, and Vessels loaded with a superfluous Serum, or clog'd with a viscous and unactive Phlegm; but of the highest Disservice imaginable to such, as are of a Bilious Constitution, whose Fibres are already too much braced, and Fluids stock'd with acrid and pungent Particles. In which Circumstances, they will produce Itchings, Cutaneous Eruptions, Scurvy, Leprosy, Large Hemorrhages, Spitting of Blood, Consumptions, Piles, Inflammations, Burning Fevers, Heat, Thirst, Arthritic and Rheumatic Pains, and the like (z). So agreeable to Truth is that Observation of Lucretius, viz.

*Tantaque in his rebus distantia differitasque est,
Ut quod aliis cibus est, aliis fuerit acre venenum.*

And again,

*Præterea, nobis veratrum est acre venenum;
At capris adipēs, & coturnicibus auget (a).*

'Tis true indeed the Effects of these, as well as those of the former sort, will be somewhat different from each other, Different Effects of Vegetable Substances whence derived.

(z) Vide Authores & Loc. Citat.

(a) Tit. Lucret. Lib. 4. V. 640, &c.

in Proportion to the greater or less Acidity, Volatility, and Pungency, as well as Quantity of the oily and saline Particles, as also from the Union of their hot and acrid, or acid Particles, with others of a *Sweet, Pulpous, Oleaginous, Viscous, Restraining, Absorbent, Terrestrial, or Austere* Nature. Whence they will become more or less Capable of producing the forementioned Effects, will bind or loosen the Belly, pass off slower or quicker by Urine or Perspiration, be more or less fitted to alter any particular Disposition of the Juices, and increase or diminish such Evacuations, as the Case and Circumstances necessarily require. But to descend to Particulars in this Matter, and show the different Result of these and other various Mixtures, with the Peculiar Alterations induc'd in the Animal Oeconomy by their Means, is a Work too tedious for the design'd Brevity of this Treatise. And I can hardly be persuaded, but that a more Regular use of the *Dietetic* Part of Physick, which was
that

that in which the Great *Hippocrates*, and most others of the Ancients chiefly excell'd, wou'd be able to cure the greatest Part of our Diseases, and that in a Method more safe and easy to the Patient, tho' perhaps not so speedy, as the most celebrated *Drugs* of the Shops. Nor will this seem at all dissonant to Reason, if we consider that these things are taken in a much greater Quantity, and more constantly, than any Medicine possibly can be, and consequently more fitted to Eradicate the most Obstinate Diseases. Which being often the Product of inveterate Habits, and confirm'd Obstructions, necessarily require a slow and gradual Alteration. Nor might they be render'd of less Service in the most acute and dangerous Cases, according to the different ways of Compounding and Preparing them; These being not only sufficient to raise, but abate the high and impetuous Motion of the Blood and Spirits, as the Necessity of the Case, and Prudence of the Physician shall direct.

Neither

Of Endemic Diseases.

Neither is it impossible to choose such, as shall both answer the Design, in restoring the Health of the Patient, and be often equally agreeable with his ordinary Food. I shall not need to mention, how great a Number of Diseases wou'd be prevented and nipt in the Bud, by a due Application of this Part of Physick, into which through the Ignorance or Abuse of it we run headlong, and whose pernicious Consequences we are rarely, and that without the greatest Difficulty able to shake off. But I wou'd not be so understood, as if I entirely disapprov'd the use of Medicines, which are oftentimes Necessary for the more perfect, as well as speedy Recovery of the Patient, but only point out the great Use and Advantages of this neglected Part of Physick; which since this Art is become more a Trade than a Science, and so often prostituted to the meanest Ends, is so little regarded, as to be scarce tolerably understood.

The

The Substances taken from the Ani- Of Food
taken from
Animals. mal Kingdom, are undoubtedly best qualified to repair the Losses our Bodies daily sustain, both in their Solids and Fluids, from the constant Vibrations of the former, and uninterrupted Motion and Expence of the latter. For that constant Friction of the solid Parts against each other, must necessarily abrade and file off vast Numbers of small separable Particles, gradually weaken their Tone, and render them unfit to perform those Operations, which are absolutely necessary to the Well-being of our Bodies. Nor do the Fluids stand in less need of a constant Supply of fresh Nourishment, to repair the Losses they sustain by the uninterrupted Circulation, and Expence of Substance they are at, not only in supplying the daily Expence of the Fibres, but in furnishing the Body with such Juices, as enable it to perform the various Actions for which it is design'd, and supplying the Loss of such as have perform'd their Office, and cannot be retain'd in
the

the Body without the greatest Prejudice. Now the Parts taken from the Body of an Animal, being such as have been already applied to this Purpose, and consisting of the very Matter by which it was nourish'd, must necessarily be better fitted to this End, than such as are taken from the Vegetable Kingdom, these being already prepar'd for that Purpose by the Action of the Stomach, Lungs, &c. of the Animal we feed on, and selected from a vast Quantity of Matter less suited to this End; as appears by the great Quantity of Vegetable Food such Animals require, as are sustain'd by it, in Proportion to the Increase of Bulk from it, as well as Quantity of Excrements voided by all such Creatures. So that were we sustain'd by Vegetable Food, all this must be done by the Action of our own Bowels and Juices, and consequently the Animal, must be much more nourishing, than the Vegetable Food. Besides the predominant Acid, as well as Viscosity of most Vegetable Food, must

must necessarily require a greater Force in the Stomach and Bile, to reduce it to that alkalious and fluxile State, which is necessary to its affording a Supply to our Bodies, whose Juices all declare a predominant *Alkali* lodged in them, as is already shown.

But notwithstanding all this be afforded in greater Proportion from Animal than Vegetable Food, yet is there no small Difference from the various Nature and Disposition of the Animal, and Food whereon he lives. For it must necessarily happen, that such Creatures as are sustain'd by viscous and sub-acid Food, as are all Graminivorous Animals, must be supplied with a Chyle more nearly approaching to these Qualities, than those that either feed upon Flesh, or such Plants and Seeds as abound with a hot, acrid, and aromatic Oil, and volatil Salt; whose Chyle must necessarily abound with more Spirituous Particles, and be of a higher and more Alkaline Nature. This is farther Evident

Flesh of Animals how different.

dent, from the different Nature of the Milk of these, and Graminivorous Animals, which is only the Chyle a little alter'd, by being strain'd and purified through the Glands of the Duggs.

Of Milks. For 'tis obvious to every one, how soon the Milk of all Graminivorous Animals will acquire an acid and sower Disposition, which will never happen to that of such Animals, as are sustain'd by Food of an Alkaline Nature, which indeed turns fetid, putrid, and stinking, but never sower, so long as the Animal continues in a healthful State. Nor does it after this Putrification yield, as the former does by Distillation, an Acid, but Alkalious Substance, and consequently the Flesh of such Animals as are sustain'd by this sort of Food, must abound with a greater Quantity of Alkaline Salts and Spirits, and be of a more hot and pungent Nature. Whence by the by, may be deduced the right Use of *Milks*, whether as Food or Physick, and in what Circumstances *Woman's*, *Cow's*, *Ass's*, or *Goat's*

Goat's Milk is most convenient. To what I have said may be added the natural Temper and Disposition of the Animal, whether it be of an active and sprightly Nature, or dull, slothful, and Stupid. Whence the Juices by which it is nourish'd, will be either more gross and tenacious by their languid Motion, or more subtilly divided and volatilised, by their greater Velocity and Attrition against each other. For it is sufficiently evident from numerous Experiments, that the spirituous Parts of any Liquor, are not originally latent in it in that Form, but produc'd by the intestine Motion and Attrition of their constituent Parts against each other, during their Fermentation; whereby the saline and oily Particles are broken and divided, and become more sharp and pungent, and specifically lighter than before. Thus *Must*, which is the unfermented Juice of *Grapes*, or a Decoction of *Barley*, or any other Grain, before Fermentation yeild large Quantities of Oil, and fix'd Salt, but no Spirit;
I but

but when sufficiently fermented, the Quantity of these Substances is much abated, and a proportionable Quantity of Spirit afforded in their stead. The same is in a great measure true of the Animal Juices, which after Fermentation or Putrefaction, yield a much greater Quantity of Volatil *Alkali* than before, as appears in Destillations of Blood, Urine, and the like. Whence it will necessarily follow, That since all our most hot, alkalious, and active Salts and Spirits, are the Product only of a greater Motion, those Animals whose Juices are most rapidly moved, and hurried about in the Circulation with the greatest Velocity, must consist of more active and subtil Parts, and afford a Nourishment extremely different from those whose Fluids are viscous, and move with a slow and torpid Motion, and consequently this sort of Food be of the greatest Service in such Cases, where the Fibres are too lax and torpid, the Blood loaded with a viscous and serous Matter, and Motion of the Fluids too languid and slow. Hence

Hence we may at one View behold the different Nature and Disposition of the whole Animal World, not only in Relation to us as our Food, but even with Regard to their very Faculties, whether Natural or Intellectual, in Respect of each other. Hence we may discern to what Constitutions, and in what Circumstances each particular Species, as it is more or less stock'd with these acrid, alkalious, and fiery Salts and Sulphurs, or consists of more mild, smooth, oily, and mucilaginous Parts, is most hurtful or salubrious. Hence we have a Reason, why such Animals as are sustain'd by Flesh, or its Preparations, or otherwise high kept, are commonly more active, sagacious, bold, and daring, than such as are nourished by more gross and viscous Food; the Fluids being more stock'd with volatil alkalious Spirits, the Fibres more tense and springy, and susceptible of the slightest Impressions. Hence we may see, why such Quadrupeds as feed on Herbaceous Plants, are not only more

*Faculties
of Animals
whence
different.*

Timorous than the former, but afford the most benign Nourishment to sound and healthful Constitutions; their Fluids being sufficiently, but not overstock'd with alkalious Nourishment, and wanting those too fiery and volatil Particles, with which those Animals abound, which are sustain'd by more hot and pungent Food. Hence we may see, why such Fowls as live on hot and pungent Seeds, and are in almost constant Motion, as are most small Birds, afford the highest and most alkaline Nourishment. Hence we may see why the Flesh of most tame and homebred Animals, which commonly live an idle slothful Life, and are less expos'd to the Severity of the Weather, is more lax and supple than those that are wild, or accustomed to laborious Exercises. Hence we may see, why the Flesh of all young Animals, whose Fibres have not acquired that Hardness by Motion, and the continued Impulses of the Fluids upon them, is more lax and tender, their Fluids more mild and mucilaginous, and less

less stock'd with acrimonious Particles than those that are old, and consequently fitter for such as are of hot, tense, and cholerick Disposition. And lastly, Hence we may see the different Natures and Dispositions of the whole Tribe of *Aquatick*, as well as *Terrestrial* Animals, the various Qualities of fresh and salt Water Fish, of such as live in clear and running Waters, or are bred in stagnating Meeres or Ponds, or are naturally of a sprightly or torpid Disposition.

Nor is it more difficult from what has been said, to deduce all the different Effects, consequent on the various Methods of cooking and preparing our Food, of what kind soever. Hence appears the different Degree of Humidity in the Parts of *boil'd* and *roasted* Meat. Hence may be deduced the Effects of *Broths*, *Gellies*, *Gravies*, &c. Hence we may see the Effects of *dried*, *salted*, *spiced*, *baked*, and *potted* Meats. And lastly, Hence appear the Consequences of all our *Soups*, *Sauces*, *Pickles*, &c. whether of an hot, acrid,

*Effects of
different
Prepara-
tions.*

acrid, salt, aromatic, and alkaline, or acid, cooling, watry, smooth, sweet, or oleaginous Nature; as well as various Compositions, arising from their different Mixtures and Proportions.

*Of Drinks
and their
Effects.*

From what has been said of solid Food, it is easie to conceive the different Effects which most sorts of Liquors, in use for common Drink or otherwise, will have upon our Bodies. Thus the Use of small, cooling, watry, and unfermented Liquors, must necessarily be of Use in those Cases and Constitutions, where sub-acid Fruits and Vegetables, farinaceous Preparations, and the like, are of Service. And the hot, vinous, and spirituous Liquors, promote the Diseases consequent on a hot and acrid Diet, in those, who are of a tense and bilious Constitution. On the contrary bitter, aromatic, spirituous, and moderately astringent Liquors, are of the greatest Use in those Constitutions, where the Fibres are too lax and torpid, Perspiration diminish'd, and the Motion of the Fluids too

too slow ; as those of a cooling Nature promote the Diseases consequent on a sub-acid, watry, and viscous Diet, in Constitutions of this kind.

Hence appear the Effects of *Coffee, Tea,* ^{*Of Coffee,*}
and the like Liquors, so much in use a- ^{*Tea, &c.*}
mongst the Ladies, and I doubt not frequently to their great Prejudice ; The Bitterness and Acrimony of some of them, especially of *Coffee*, which contains a hot, acrid, and empyreumatick Oil, and pungent Salt, being prejudicial to some, as the too great Quantity of Water in most *Teas* is to others : Those of a hot, tense, and cholerick Habit being unable to bear a long use of the former ; and those of a lax and phlegmatic one, highly injured by the constant use of the latter.

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